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FINANCING MODERN HIGHWAYS FOR MONTANA

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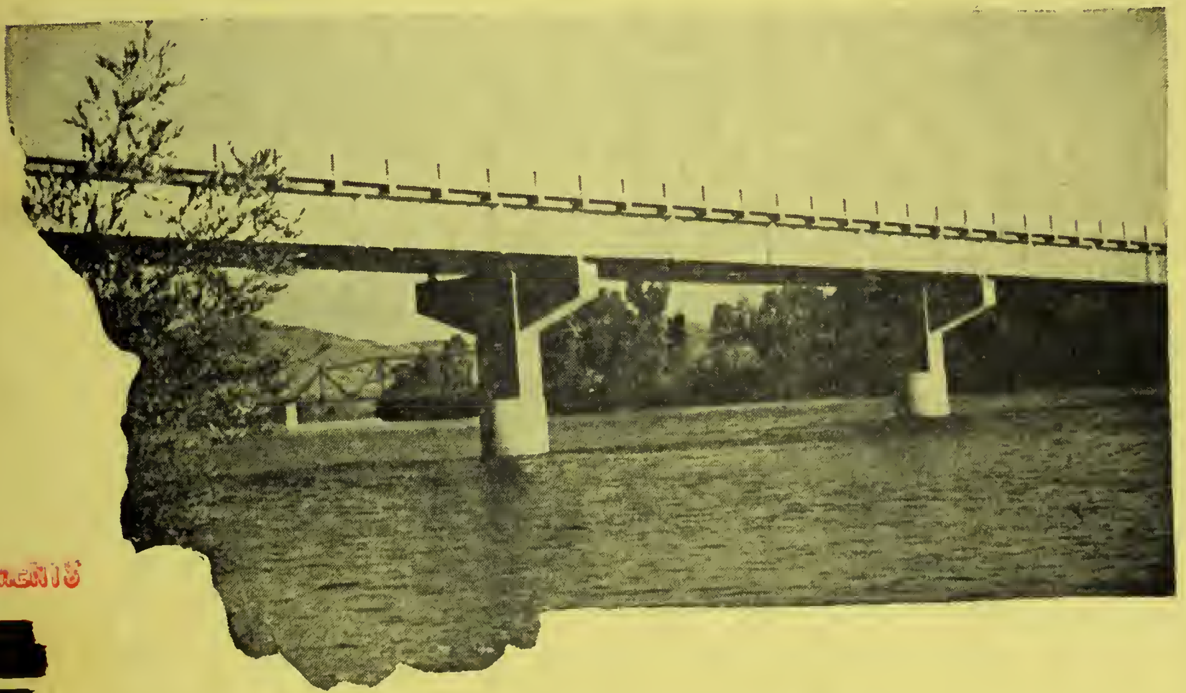

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AN ANALYSIS OF FINANCIAL POLICY
FOR THE
FACT FINDING COMMITTEE ON HIGHWAYS

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FINANCING MODERN HIGHWAYS
FOR
MONTANA

By
WM. L. HALL
Transportation Economist

Assisted By
RALPH D. JOHNSON
Highway Engineer

DANIEL J. SHEA and ARTHUR NELSON
Research Assistants

A REPORT ON HIGHWAY FINANCES

To the

MONTANA FACT FINDING COMMITTEE
On Highways, Streets and Bridges

COVER PHOTO

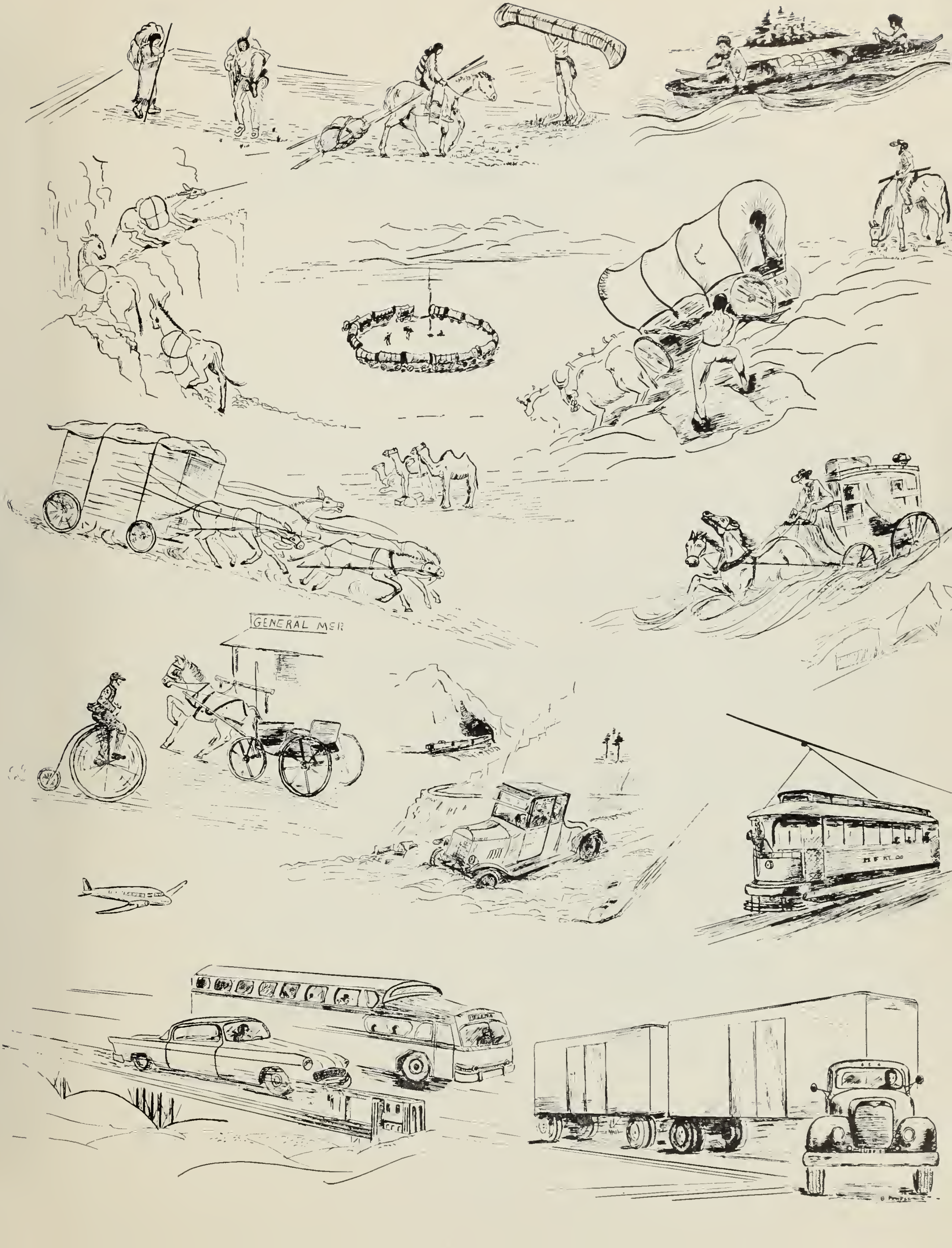
Bridge over Missouri River on US 10 N. near Townsend, built 1955. Bridge and adjacent overpass of railroad cost $525,750.00. Old bridge in background built in 1919 cost $51,341.00.

McKEE PRINT.

FRONTISPIECE

The history of Montana is the history of transportation. The great strides from horse and boat transport to the railroad and then the passenger and freight carrying motor vehicle and finally the airplane have paced the development of Montana.

Special illustration by
Bernice Powell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MONTANA FACT FINDING COMMITTEE ON HIGHWAYS, STREETS, AND BRIDGES

Established by Chapter 99
Laws of Montana, 1955
Chairman—George B. Schotte

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*Deceased

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MONTANA FACT FINDING COMMITTEE
ON HIGHWAYS, STREETS AND BRIDGES
P. O. Box 921
Helena, Montana

November 15, 1956

Mr. George B. Schotte, Chairman
Fact Finding Committee on Highways, Streets, and Bridges
Helena, Montana

Dear Mr. Schotte:

This publication, "Financing Modern Highways for Montana", is submitted as my report to the Fact Finding Committee.

The report presents a financial plan to accomplish the objectives of the Automotive Safety Foundation's engineering appraisal of Montana's Highway Needs. It includes a report on the allocation of costs among the various beneficiaries of highway development. It also includes specific suggestions of tax rates to recover those costs and a program to establish Montana's control and taxation of motor vehicles on a sound basis.

As mentioned in the preface to the report, I have been assisted in the work by many persons, most of whom are Montana citizens. Regardless of this assistance, however, the work was under my close direction and the conclusions and recommendations are my sole responsibility.

It has been a pleasure to work with you and your Committee in this undertaking.

Very Truly Yours,

Wm L. Hall

Wm. L. Hall,
Executive Director.

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PREFACE

A Report to the Fact Finding Committee

It is a reasonable assumption that a program for better highways and streets in Montana was uppermost in the thoughts of Montana's 1955 legislative assembly when it established the Fact Finding Committee on Highways, Streets, and Bridges. Any lesser goal would not have justified the broad study outlined by that assembly. Following the directives of that assembly, your Committee employed the writer as director in July 1955. Soon thereafter it was determined that the required studies would involve an extensive engineering analysis of the costs of modernizing Montana's 72,500 miles of roads and streets, as well as a detailed financial study of how these costs might be financed. It was recognized that the funds provided for the operation of the Committee would not begin to pay the costs involved, but it was realized that any lesser approach would fail in the end product desired. Accordingly, it was arranged to have much of the work jointly financed by the State Highway Commission, the U. S. Bureau of Public Roads, and the Committee funds. Joint financing is particularly apparent in the report entitled, "Moving Ahead on Montana Highways", which is published separately as a report of the Automotive Safety Foundation.

The work of preparing the engineering needs analysis was absorbed entirely by Automotive Safety Foundation and State Highway employees, ably assisted by local county, city, and Federal engineers. The work of the Financial Study was coordinated by the writer who also acted as executive director of the Committee. The double assignment, which is somewhat unusual in this type of work, had its disadvantages in time demands, but was advantageous from the point of overall coordination of the work.

Certainly the staff assigned to the financial studies was of the highest order. This staff was tireless in efforts directed toward the collection and analysis of necessary information. Special acknowledgment is due to Mrs. Marjorie Kennett, Secretary, who tended to all those details that keep an office operating smoothly. Ralph D. Johnson, Research Engineer, loaned by the State Highway Department, developed procedures and assembled data for cost allocations among various highway users that gained wide support among national and local students of this complex problem. He was ably assisted by James Hand and Leonard Larson. Daniel Shea, Economist, assembled and checked most of the data on the history of highways and highway finance in Montana, as well as the impact of highway taxation on the economy of the State. Arthur Nelson, working as my assistant, was invaluable in public contact work and in gathering data on laws and procedures in Montana and other states in relation to motor vehicle departments, commercial vehicle taxation, Ports of Entry and similar items.

In addition to the immediate staff, we were assisted by a study of Highway Cost Allocation, under direction of Professor Maurice Taylor and Carl Infanger, Montana State College; and by a study of the highway taxation increment of truck costs and consumer prices by Dr. William Peters and Frederick W. Harris of the Montana State University.

The Highway Commission and their entire staff were helpful in many ways. In fact, the study could not have been made without the efforts of Scott P. Hart, State Highway Engineer, and Henry C. Helland, who so effectively coordinated the assistance of that department. Others in the department to whom special thanks are sincerely extended are Maurice RiChey, Traffic Engineer; Robert O'Leary, Chief Accountant; Charles S. King, Planning Survey Engineer, and his assistants, Howard Buswell, Paul DeVine, Carl Wirth, and William Mortieau.

Abundant assistance was provided by John Sargent, Portland, Oregon; G. P. St. Clair, Hugo Duzan, and C. A. Steele, Washington, D. C., and Mort Flint, William Huffine, and Richard Arenz of Missoula, all employees of the U. S. Bureau of Public Roads.

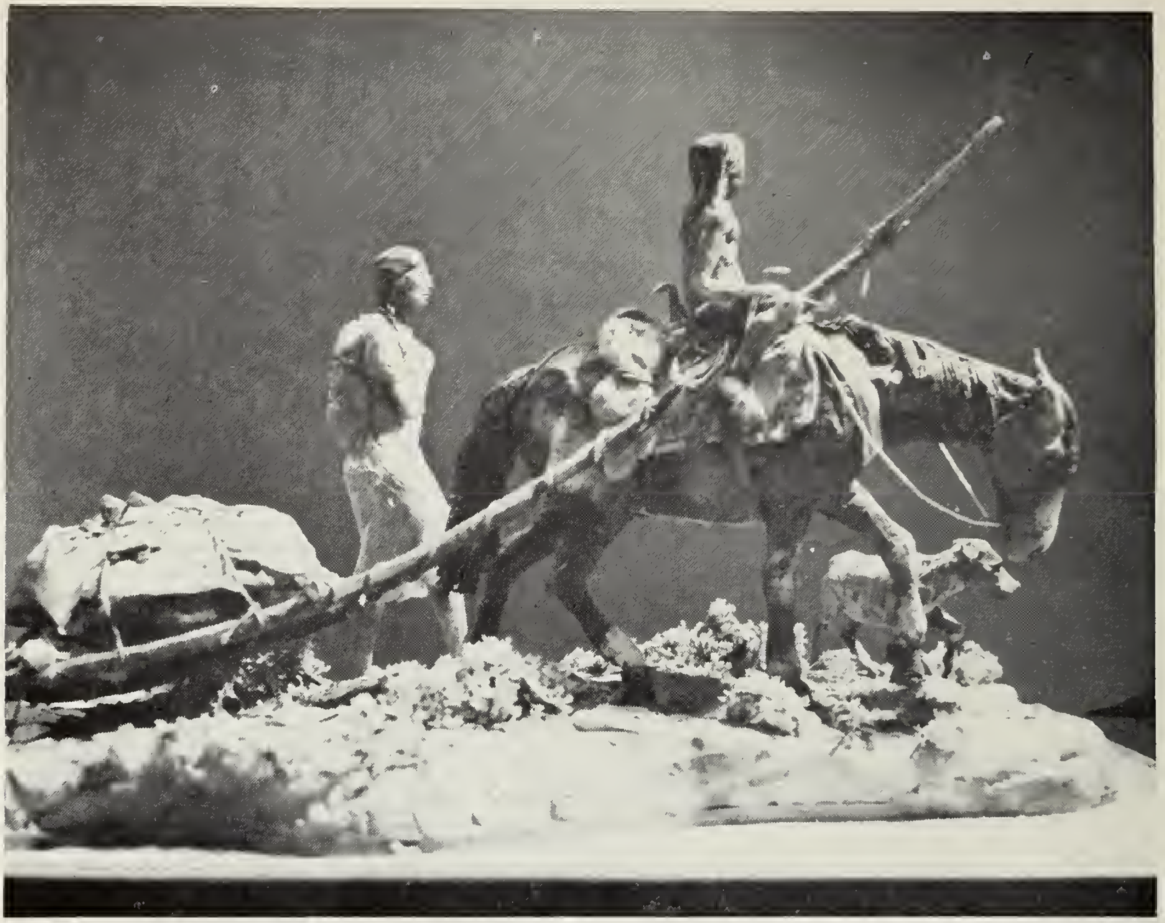
Valuable counsel was provided by Dr. E. R. Dodge, Dean of Engineering, Montana State College, in connection with incremental cost studies.

The Montana Motor Transport Association provided generous field assistance in collecting data on commercial vehicle operation.

Conclusions of the writer are presented in the last chapter. The appendices include statistical tables, a discussion of the possible establishment of a motor vehicle department in Montana, and possible laws to effectuate some of the findings.

In addition to the engineering and financial studies staff reports have been prepared on Traffic Safety and Periodic Motor Vehicle Inspection, The Effect of Truck Taxation on Consumer Prices, and User and Non-User Benefits from Highway Development. These reports are available in limited quantity for official use. Also, a complete technical report on procedures of the Incremental Analysis of Highway Costs will be published about January 1, 1957.

It should be realized that no report of this nature can be accepted as final for all time. Changes of traffic patterns and highway usage can easily indicate marked adjustments of fiscal policy. Periodic review, therefore, becomes a desirable procedure for any State interested in sustained equity in its highway program.



EARLY LAND TRANSPORT IN MONTANA

The Horse Travois

The Blackfoot horse travois was made and owned by Indian women. The French name, "Travois" was applied by the Whites who came to the region in the 19th century. Each family generally made its own travois, but a good travois would bring as much as a horse in trade. It was probably the first method of land transport in the area, except for that provided on backs of pack animals The travois consisted of two stout poles of lodge-pole pine fastened in the form of an "A". It was attached to the horse with an ingenious hitch. The loading platform was secured to the poles less than 2 feet from the horse's tail. The complete rig weighed less than 50 pounds, ready for loading.

Chapter 1

HISTORICAL DEVELOPMENT OF HIGHWAYS IN MONTANA

Early Roads.

Era of Fur Trading. The history of highways in the State of Montana dates back to the Lewis & Clark expedition in 1805. In fact, the history of the highways parallels the history of the development of the State.

Although Montana was not settled until the middle of the nineteenth century, it had been the mecca of fur traders and trappers ever since Lewis and Clark returned from their expedition. Great fur trading posts had been established on all the rivers, and although many trails existed for man and horse, there were no roads, as we now know them. By far the larger number of traders and trappers reached the scene of their labor by way of the Missouri River. This stream was the great highway leading to Montana in the days of fur trading.

Era of Gold Mining. Gold had been found in Montana as early as 1852; gradually excitement and interest spread until between 1862 and 1864 fever height was reached. People came from every direction. Time being an important element, the shortest routes were sought. After many experiments and many failures, a few main routes of travel came to be followed to the exclusion of others. These roads, such as Mullan Road, Bozeman's Trail, Bridger's Trail, the Corine Wagon Road, and Graham's Wagon Road, to mention a few, were the early emigrant roads to Montana and are well known historical landmarks today.

Beginning of Permanent Settlements in Montana.

After the mines were in full production, other industries sprang up and the new and enlarged population became relatively permanent. However, the early gold miners sought quick fortunes and were content with the construction of trails, roads and bridges which were temporary or makeshift in character. As a result, the new communities and farming areas were cut off from communication with markets and sources of supplies when the roads became impassable. Citizens would offer their services for building and maintaining roads running through or past their lands. Volunteer labor was a reasonable method of distribution of the road burden only so long as everyone contributed his fair share.

It soon became necessary to require men to work a specified number of days or to pay a tax in lieu of labor in order to provide adequate roads. The Fifth Legislative Assembly of Montana Territory in 1869 placed public road building and maintenance into the hands of the counties and county commissioners. It also provided for a tax of one mill on the dollar and a per capita tax of $3, labor or money, for support of the public roads. Certain counties were also permitted to levy taxes for bridge purposes.

Advent of the Railroad.

The Missouri River had done its part in opening up the West, but little by little it was forced to give way to the better methods of transportation. The railroad in the West was the greatest enemy of the river. The path of the railroad followed the river valley, gradually destroying all river trade. The final blow was dealt in 1887 when the Great Northern reached Helena. In 1902, Congress passed an act abolishing the Missouri River Commission, thus abandoning the river as a commercial highway.

Although the railroads replaced the old emigrant roads and the Missouri River as commercial highways, they increased the need for adequate feeder roads. The railroads provided a means of getting the produce and livestock to the eastern and western markets, which, in turn, encouraged the cultivation of new land and the raising of livestock. More and better roads were needed to serve these new farms and ranches and to connect with shipping points along the railroads. Feeder roads became the primary need in this era.

Good Roads Movement.

It was about this time that people throughout the State were becoming aroused to the need for better rural roads. This was also a time when the importance of the automobile was being realized. In fact, in 1905, sufficient interest was aroused to bring about the enactment of a law providing for the regulation of the operation of motor vehicles upon the highways of the State.

With the farmer in need of farm-to-market roads, and the motorists being greatly restricted by the poor condition of the unsurfaced rural roads, a good roads movement was inaugurated. A convention was held in 1910 at Billings and a permanent organization was created and called, "The Montana Good Roads Congress."

Fundamentally, the movement for road reform sought to remove some of the economic and social disparities between rural and urban areas by bringing the standards of rural road transportation up to the level enjoyed by the communities served by the railroads. The "Good Roads" objectives were to "get the farmer out of the mud," provide farm-to-market roads, and build rural roads for the light traffic of the period.

The "Good Roads Congress" was composed of two separate groups, the farmers and the motorists. The farmers and local interests believed in the autonomy and self sufficiency of the local communities and stressed that primary emphasis in road building should be given to the feeder roads running north and south within the State. It was contended that the railroads provided the most economical means of intercommunity transportation and that it was the State's first duty to better the roads for the delivery of products to the railway shipping points. The early motorists and others who benefited by the development of touring trade in turn favored the main highway connecting the principal trade centers of the State. This group claimed that it was of first importance to concentrate upon highways through the State from the Dakotas to the Idaho state line, and later to provide feeder roads north and south to connect with these highways.

Both groups realized that regardless of which system was inaugurated, State aid would be necessary since the range of travel was reaching beyond local limits, and the financing of some of these highways was a State-wide problem.

Creation of the State Highway System.

As a result of the Good Roads movement, the State Highway Commission was created in 1913. The law creating the Commission was vague. The appointment of two regular State employees as ex-officio members of the Board, and the loosely worded authorization of the duties of the Commission indicated that, even in 1913, the State Legislature was hesitant to assume much authority or responsibility for construction and maintenance of public roads.

The designation of State highways was left to the appointed commissioners. A State highway at this time was defined as any Primary road designated by the Highway Commission and the county commissioners, and that was constructed or improved under the act.

Inauguration of Federal-Aid

The increase in highway traffic brought about by the development of the automobile was demanding attention throughout the country. The Federal government recognized this condition and the economic necessity of doing something about it. With this background, the Federal government in 1916 became a participant in the furnishing of funds for highway purposes. In Montana, State funds being very limited, these Federal funds were matched largely from the proceeds of county bond issues, but surveys and plans were made and construction supervised by the Highway Department.

The Federal Highway Act of 1921 established the Primary Federal Aid Highway System, and restricted Federal-aid appropriations to it. By this time, it was becoming apparent that the State Highway Commission needed more funds to match Federal money. Under the various laws that gave a limited revenue to the State Highway fund up to 1926, the only funds of consequence that were applied to State road purposes were appropriations for engineering, administration and overhead.

In 1926, an initiative measure was approved providing for a three-cent gasoline tax with 100 percent of net revenue being apportioned to the State Highway fund. For the first time in the history of the State Highway Commission, State funds were available for matching Federal-aid. With this money the Commission started a comprehensive road-building program.

Current Importance of Highways in the State.

Currently, highway transportation assumes great importance in Montana with its vast area and wide distribution of population. Service for isolated rural areas requires an extensive network of roads. As an illustration, one mile of rural road in Montana serves 5 persons of rural population. In Montana, each mile of rural road must serve two miles of area. The national average is one mile of rural road to each 0.9 mile of area.

Although progress has been made in improving the condition of rural roads, much remains to be accomplished. In Montana, 53 percent of the farms are still located on earth or unimproved roads. Also, about 36 percent of the farm residents must travel over 5 miles or more of unimproved roads in order to reach the nearest trading center. The national average is much superior to this.

The city resident is highly dependent on the transportation service provided by the principal highways. As a group, the city resident comprises 55 percent of the population, owns 57 percent of the passenger cars, 22 percent of the trucks, 47 percent of all motor vehicles and accounts for 52 percent of the travel performed by Montana residents.

Of 505 cities, towns and small communities in the State, 137 are located at points which are not served by railroads and are completely dependent on highway transportation. Six of these places are incorporated cities, including two county seats.

The city resident is also dependent on the commercial aspects of highway transportation. Many retail and wholesale establishments depend entirely on truck transportation for incoming and outgoing shipments.

Montana is a bridge state between the mid-west and the rapidly growing northern Pacific coast states. There is considerable interstate traffic moving through Montana between these areas. The natural geographic position of the State accounts for much of this traffic. The topographic features of relatively low mountain passes and broad river valleys also attract such movements. It is for these reasons that the problems of providing adequate highways through the State assumes national importance.

All types of motor vehicle owners and operators, both rural and urban, passenger car and truck, have a vital interest in the improvement of highways throughout the State. It has been proven many times that good highways don't cost, they pay. In many instances, the benefits received from new highway construction far exceed the cost to the motoring public.

EARLY ROAD FINANCE IN MONTANA

Historical Toll Road Through
Wolf Creek Canyon Near Helena

Photograph of one of ten oil paintings in home office of Western Life Insurance Company, Helena, Montana, depicting historical events in early Montana.

Courtesy: Western Life Insurance Co.

Chapter 2

HIGHWAY FINANCE IN MONTANA

State Highways.

Size of System. According to official road logs of the State Highway Department, Montana's highway mileage totaled 72,925 miles in 1955, of which 5,896, or 8.1 percent, were on the State system. The State system of highways consists of mileage encompassed in the Federal-aid Interstate and Primary systems. In 1955, two-thirds of all travel in the State was on these systems. In addition, there are 24 miles which were classified as "other state system."

The Federal-aid Interstate amounts to 1,246 miles, of which 1,198 are rural, and 48 miles, urban.

An additional 4,024 miles of Federal-aid secondary highways are under State jurisdiction for construction purposes only. The counties are responsible for the administration and maintenance of these roads.

Types of Roads. The State system includes 5,731 miles of rural highways. This can be further classified into 309 miles, soil-surfaced; 171 miles, gravel-surfaced; and 5,251 miles, surface-treated.

The Primary system in urban areas totals 165 miles, of which 3 miles are soil-surfaced; 1 mile, gravel-surfaced; and 161 miles, surface-treated.

Source of Receipts. In the 42-year period since the creation of the State Highway Commission, total revenues available for State administered highways have been approximately $346,608,000. In the year 1955 receipts for this purpose were $27,230,000. Chart 2-1 shows the relative magnitude of receipt sources in selected years. The same years are shown in other charts for counties, cities and total in this chapter. The year 1937 has been chosen as an illustration because it is the first year for which data are available for all units. The years 1941 and 1946 are used because of relation to war years and 1950, 1953, 1954, and 1955 show current trends.

	1913-1955		1955 Only	
	Amount (000)	Percent	Amount (000)	Percent
Highway User Taxes	$185,721	53.6	$18,607	68.4
Federal Aid	129,851	37.5	7,950	29.2
Fed. Oil Royalties	3,926	1.1	461	1.7
Misc. and Unclas.	2,134	0.6	64	0.2
Transfer from Counties	5,476	1.6	148	0.5
Borrowings	19,500	5.6	...	...
Total	$346,608	100.0	$27,230	100.0

Contributions from Counties. In the early years, the State Highway Commission was dependent on the counties for matching Federal-aid. The counties issued bonds to secure necessary funds and from 1919 to 1935 contributed approximately $5 million for State administered highways.

Highway User Fees. Highway user fees have provided $186 million, or 53.6 percent of all State Highway revenue.

Registration Fees. The first user tax in Montana was the registration fee on motor vehicles. The first registration law in 1913 was declared unconstitutional but was reenacted in new form in 1917, and has been in force ever since.

The fees under this law were based on a graduated horsepower rating for passenger vehicles and a weight basis for trucks. In 1929, the passenger car fee was changed to a weight basis. The passenger car fees of $5, if under 2,850 pounds, and $10, if over, have remained the same since 1933.

Registration fees are normally considered as State imposts. Since 1923 these fees have been retained by the county treasurers for deposit in the county road funds. Prior to 1923, registration fees had produced approximately $2 million for State administered highways.

The State Registrar of Motor Vehicles administers the registration law and is responsible for the making and delivering of license plates to the counties. It is his duty to keep records of all motor vehicles in the State, and of all dealers in motor vehicles. The registrar receives revenue derived from miscellaneous fees, such as certificates of title, duplicate licenses, dealers' permits and the like to cover the administration expenses of that department. Although these fees could be considered user fees, they are not used directly for highway purposes.

Motor Vehicle Use Tax and Gross Vehicle Weight Fees. In 1950 a Motor Vehicle Use Tax was enacted. This act provided that in consideration of the right to use the highways of Montana, various fees were to be imposed upon vehicles registered in the State. These fees were $3 for passenger vehicles, $5 to $100 for trucks, based upon their manufacturers' rated capacity, and $2 to $100 for trailers. This tax was temporary and the two years it was in effect produced approximately $3 million which was deposited in the State Highway fund.

The first Gross Vehicle Weight tax was put into effect beginning January 1, 1952. This law has since been amended by the 1953 and 1955 legislative assemblies. The fees in effect today range from $4 for vehicles of 6,000 pounds, to $435 for vehicles of 42,000 pounds. Trailers are licensed separately from power units and at substantially the same rate schedule. These fees replaced the graduated registration fees in the regular registration law. All commercial vehicles now pay a flat $10 registration fee.

In addition to these graduated gross weight fees, the law provides for a sales tax on new automobiles. This sales tax is from three-eights of one percent to one and one-half percent of the list price of the automobile, depending on the annual quarter in which the automobile is purchased. This tax may be considered to be in lieu of the first year county property tax.

The Gross Vehicle Weight Law is administered by the State Highway Department. County Treasurers collect the fees and retain 5 percent to cover collection costs. The remainder is credited to the State highway fund.

Proceeds from 1952 to 1955 amounted to $8 million. Currently, the Gross Vehicle Weight fees provide 8.4 percent of total revenue for State administered highways.

Caravan Fees. In 1953, an act was passed to provide for the payment of fees for the transportation of new vehicles over the highways by drive-away or tow-away methods. The caravan fees are $100 for an annual permit, $5 trip fees per driven vehicle, and $1 for each pair of transit plates. The Registrar retains the permit and plate fees to defray costs of administering the act. The $5 trip fee is apportioned five percent to the Registrar and the remaining ninety-five percent is remitted to the State Treasurer for deposit in the State highway fund. Since the caravan law has been in effect, it has produced approximately $22,000. In 1955 it produced about $9,000.

Fuel Tax.

Gasoline. The first fuel tax in Montana was enacted in 1921. This tax was one cent per gallon on all gasoline used in motor vehicles but none of this money was dedicated for highway purposes.

The law was amended in 1923 to provide a tax of two cents per gallon. The revenue was divided 40 percent each to the State general fund and to counties, and 20 percent to the State highway fund. At this time, registration revenues were dedicated 100 percent to the counties. As a result, there was no net increase in revenue for State administered highways.

In 1926, through an initiative measure, the gas tax was raised to 3 cents per gallon with 100 percent of the net revenue going to the State highway fund. With this substantial increase in funds, the Highway Commission was able to match Federal aid on its own, and start a comprehensive road building program.

The 3 cent tax was renewed in 1927 with provisions for refunds of fuel used for non-highway purposes. It was raised to 5 cents in 1929, 6 cents in 1949, and finally to 7 cents in 1955.

Special Fuel. The use of diesel oil and similar low-test fuels in motor vehicles began to pose new problems in the early 1930's. The 1935 legislative assembly passed a law to include low-test fuels used on the highways within the fuel tax law.

In 1945, a use tax law was enacted. This law required that a diesel user could purchase and use diesel fuel for propelling motor vehicles upon public highways and streets within the State, provided he applied for a use permit and, in turn paid the tax directly to the State Board of Equalization. This law imposed a levy of 5 cents per gallon, the same rate that applied to gasoline.

The permit system was considered necessary since the majority of the consumers of low-test fuels were non-highway-users. Administration expense involved in refunding, in addition to inconvenience to taxpayers, made a generally applied tax undesirable.

In an attempt to overcome certain deficiencies in this law, a revised special fuel tax law was enacted in 1955. Under this law each special fuel user must obtain a license and file a surety bond. The tax rate on these special fuels is 2 cents per gallon higher than the regular gasoline tax rate. The user pays the current 9 cent tax at the time of purchase, if purchase is for highway use and from a licensed dealer. If the special fuels are acquired by the

Table 2-1

MONTANA'S HIGHWAY MILEAGE, 1955

	Soil Surfaced	Gravel Surfaced	Surface Treated	Total
Primary Rural	309	171	5,251	5,731
Secondary Rural	649	2,229	1,093	3,971
Other State System Rural	1	14	5	20
Local Rural	48,368	12,731	539	61,638
Sub-total	49,327	15,145	6,888	71,360
Primary Municipal	3	1	161	165
Secondary Municipal	2	14	37	53
Other State System Municipal	....	....	4	4
Local Municipal	337	474	532	1,343
Sub-Total	342	489	734	1,565
TOTAL ALL ROADS	49,669	15,634	7,622	72,925

Source: 1955 Montana Federal-Aid Road Log.

highway user from other than a licensed dealer, he pays the tax directly to the State Board of Equalization on a monthly basis. In any case, each dealer and user is required to make a monthly report to the Board.

Total proceeds from both motor fuel tax and special fuel tax for road purposes for State administered highways through 1955 amounted to $172 million. Currently, the fuel tax provides about $17 million annually, 60 percent of total revenue for State administered highways.

Drivers' Licenses. Montana did not have a drivers' license law for operators prior to 1935. The chauffeurs' license, with a fee of $2.00, was part of the first Montana State Motor Vehicle law in 1913.

In 1935, with the creation of the Highway Patrol, every owner or driver of motor vehicles was required to procure a driver's license. The fee was set at seventy-five cents for an annual permit.

In 1947, the Montana Uniform Vehicle Operators and Chauffeurs license law was enacted which directed that the permits be purchased once every 2 years for a fee of $3.00.

These fees are not applied to State highways, but are deposited in the State general fund. The Highway Patrol, in turn, operates on an appropriation from the State general fund.

Motor-Carrier Fees. Common and contract motor carriers are required to pay certain special fees to operate within Montana. The proceeds from these charges are deposited in the General fund, ostensibly for use of the Montana Railroad Commission to defray costs of administration. The fees are regulatory in nature and should not be regarded as highway-user imposts. In 1955, these fees produced $279,334. Administration and operating costs of the Railroad Commission amounted to $104,089. The fact that the fees collected normally exceed regulatory costs leads to the conclusion that regulation activity should be accelerated or fees reduced accordingly.

Borrowing for State Highways. Since 1931 $19.5 million of bonds have been issued for State administered highways. This amounts to 5.6 percent of total State highway revenue.

1931-1934 Issue, $4.5 Million. In 1930, the State found itself again with inadequate funds to match Federal aid. In recognition of this problem, the voters of the State approved Referendum Measure No. 35 in 1931, providing for the issuance of $6 million in highway bonds. These bonds, which were supported by a pledge of gasoline tax revenues, were to be sold at the rate of $1,500,000 per year. Bonds were sold in the years of 1931, 1933, and 1934. No bonds were sold in 1932.

1939 Issue, $3 Million. By 1937 the bond money had been exhausted and the financial situation made it necessary that additional State money be provided. Initiative Measure No. 41 was approved at the polls in 1939, providing $3 million in new bond proceeds.

1946-1949 Issue, $12 Million. During the war period, gasoline rationing and other factors reduced traffic to the point where the motor fuel tax collections were sufficient only to pay for the general operational and maintenance obligations of the State Highway Commission. Since practically all of the Commission's revenue was derived from this source, it was evident that additional revenue had to be raised immediately to provide the necessary funds to match both the accumulation of Federal aid and the extra apportionments resulting from the Federal Aid Highway Act of 1944. The State again turned to bond financing and authorization was received for the issuance of $12 million in new bonds. These

Table 2-2

FUTURE STATE HIGHWAY DEBT SERVICE REQUIREMENTS

Assets

Sink. Fund Bal. 8/15/56			$ 183,998
Investments		$1,200,000	
Earnings: 2.38%			
Dec. 1956	$ 14,280		
June 1957	14,280		
Dec. 1957	14,280		
June 1958	14,280		
Sub-Total	$ 57,120	$ 57,120	
Fuel Tax Deposits at $106,000 per mo.			
Dec. 1956	$ 424,000		
Dec. 1957	1,272,000		
July 1958	742,000		
Sub-total	$2,438,000	$2,438,000	
Sub-total		$3,695,120	$3,695,120
Total Income..			$3,879,118

Liabilities

Obligations Outstanding ..		$3,000,000
Accrued Interest		3,648
Interest Due: 1.9%		
Jan. 1957	$ 28,500	
July 1957	28,500	
Jan. 1958	28,500	
July 1958	28,500	
Total	$114,000	$ 114,000
Total Amt. Due 7/15/58		$3,117,648
Excess Income by 7/15/58		761,470
		$3,879,118

bonds were sold over a period extending from June 15, 1946 to March 15, 1949.

Although the 1946-1949 debentures are scheduled to be retired by July 15, 1958, fuel tax deposits and investment earnings should provide enough income to retire outstanding obligations and pay interest by December 31, 1957. The above figures from the State Treasurer's office indicate that total income by December 31, 1957 will amount to $3,122,838.

All fuel tax revenue except the special 1 cent levy of 1955 which expires April 1, 1957 is pledged to the support of bond retirements. It appears that the fuel tax may thereby expire at the time the final bond is redeemed. With this in view an inquiry was directed to the Attorney General as to the legal status of this fuel tax fee. The following is quoted from the answer to this inquiry.

> "This is to reply to your inquiry of May 1st, regarding those gasoline taxes dedicated to retirement of the debenture indebtedness created by Chapter 39, Laws of 1945. Neither that Act, nor amendatory acts, provide an expiration date for the basic license dealers tax upon gasoline."
>
> "Further, there is language contained therein (Section 10) which a court might possibly declare terminative of the tax by operation of the statute itself. It is suggested that failure to present curative legislation may result in the purchase of a lawsuit and a strong possibility of loss of vital tax monies."

It appears that corrective legislation would be in order.

Federal Aid.

From time to time Congress has enacted legislation and has appropriated funds for the purpose of aiding the states prosecuting certain activities of national interest and importance. Federal aid for roads simply means that under certain conditions and restrictions the Federal government, through Congressional appropriations, will contribute toward the cost of building highways and bridges within the several states.

Rural Post Roads. Federal aid for highway improvements became a fixed policy of the Federal government with the passage and approval of the Congressional Act of July 11, 1916, known as the Federal Aid Road Act. This act carried an appropriation of $75 million "to aid the states in the construction of rural post roads and for other purposes." The annual appropriations were apportioned to the states on the bases of area, population and post-road mileage.

Federal-Aid Primary System. On November 9, 1921, the Federal Highway Act was passed carrying an appropriation of $75 million. The Act was amended in 1922, making provision for a three-year program of Federal-Aid carrying an additional appropriation of $190 million.

The apportionments to the states under this Act were restricted to a system of highways in each state, which were not to exceed seven percent of the total road mileage of the state.

The Emergency Relief and Construction Act of 1932 permitted this seven percent, or Federal-Aid Primary System, to be increased in one percent increments of the total certified mileage when ninety percent of the existing Federal-Aid system had been completed and its maintenance assured.

Upon the recommendations of the State Highway Commission, the U. S. Secretary of Agriculture on October 9, 1922, approved approximately 4,366 miles for the Federal-Aid Primary System within Montana.

Subsequent legislation has continued regular Federal-Aid apportionments for the Primary System except for a few years in the early "thirties" and during World War II.

The 1944 Federal-Aid Highway Act extended the use of Federal-Aid funds and, along with other measures, designated three systems within the original Primary system. They were the Federal-Aid Interstate, Urban, and Primary systems. In 1955, the designated Urban system, amounting to 68 miles in Montana, was abolished. This mileage is still eligible for Federal-Aid expenditure but as part of the Primary or Interstate systems.

Currently, the Federal-Aid Primary System in Montana contains approximately 5,896 miles. Actual seven percent system mileage outside Federal reservations is approximately 4,676 miles, but system mileage within Federal reservations is not charged against the allowable seven percent.

Federal-Aid Interstate. This system, within the Primary system, consists of 41,000 miles of roads throughout the United States selected so as to connect principal metropolitan areas, coastal and border points, and serve national defense. Prior to the 1952 Highway Act, no funds had been earmarked or authorized specifically for this network. An authorization of $25 million was included in the 1952 Act. The Federal-Aid Highway Act of 1954 increased the amount to $175 million annually in recognition of the network's value as the backbone of the national transportation system.

In Montana, the Interstate system is about 1,246 miles in net length.

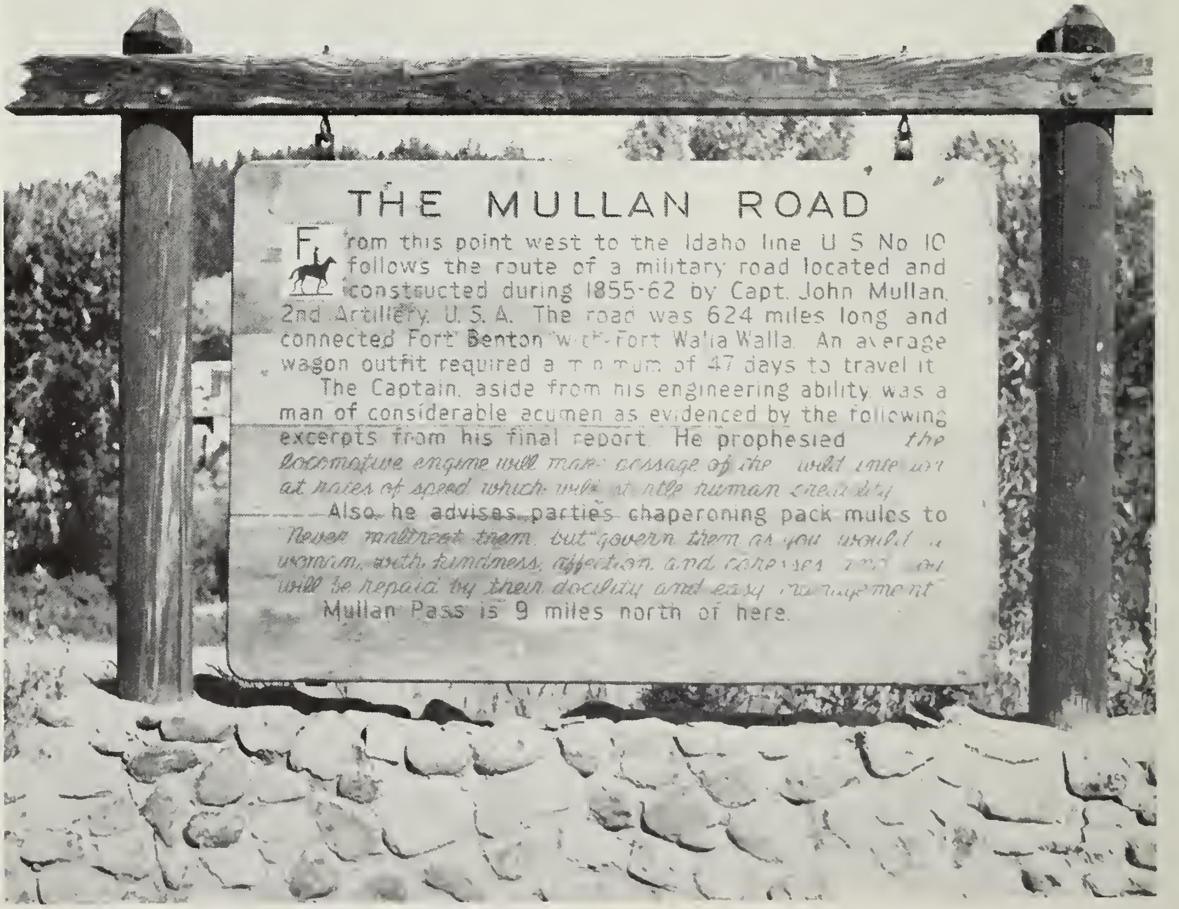
Federal-Aid Secondary. Legislation creating the Federal-Aid system had the effect of restricting the system to primary highways. This caused the exclusion of many tributary roads carrying comparatively large traffic. In recognition of the need for the improvement of high traffic roads off the Federal-Aid System, the Hayden-Cartwright Act, approved June 18, 1934, provided funds for the construction of secondary or feeder roads, including farm-to-market roads, mail routes, and school bus routes.

The 1944 Federal-Aid Highway Act directed that an official Federal-Aid Secondary System be established of such size as could be improved within a reasonable period. The size of the ultimate system was tentatively established at 10 percent of the total rural road mileage within the State, although there is no Federal restriction on the extent of this system. The Bureau of Public Roads approved 2,465 miles for this system in Montana on November 9, 1945. This has now grown to over 4,000 miles.

MULLAN ROAD

THE FIRST "FEDERAL-AID" ON MONTANA ROADS

Courtesy: Montana State Highway Commission



THE MULLAN ROAD

From this point west to the Idaho line U S No 10 follows the route of a military road located and constructed during 1855-62 by Capt. John Mullan, 2nd Artillery, U. S. A. The road was 624 miles long and connected Fort Benton with Fort Walla Walla. An average wagon outfit required a minimum of 47 days to travel it.

The Captain, aside from his engineering ability, was a man of considerable acumen as evidenced by the following excerpts from his final report. He prophesied *"the locomotive engine will make passage of the wild interior at rates of speed which will startle human credulity."*

Also he advises parties chaperoning pack mules to *"Never maltreat them, but govern them as you would a woman, with kindness, affection, and caresses, and you will be repaid by their docility and easy management."*

Mullan Pass is 9 miles north of here.

A typical Historical Marker along Montana's Highways

Reproduced here through courtesy of R. H. Fletcher

CHART 2-1

STATE RECEIPTS FOR HIGHWAY PURPOSES FOR SELECTED YEARS 1937-1955

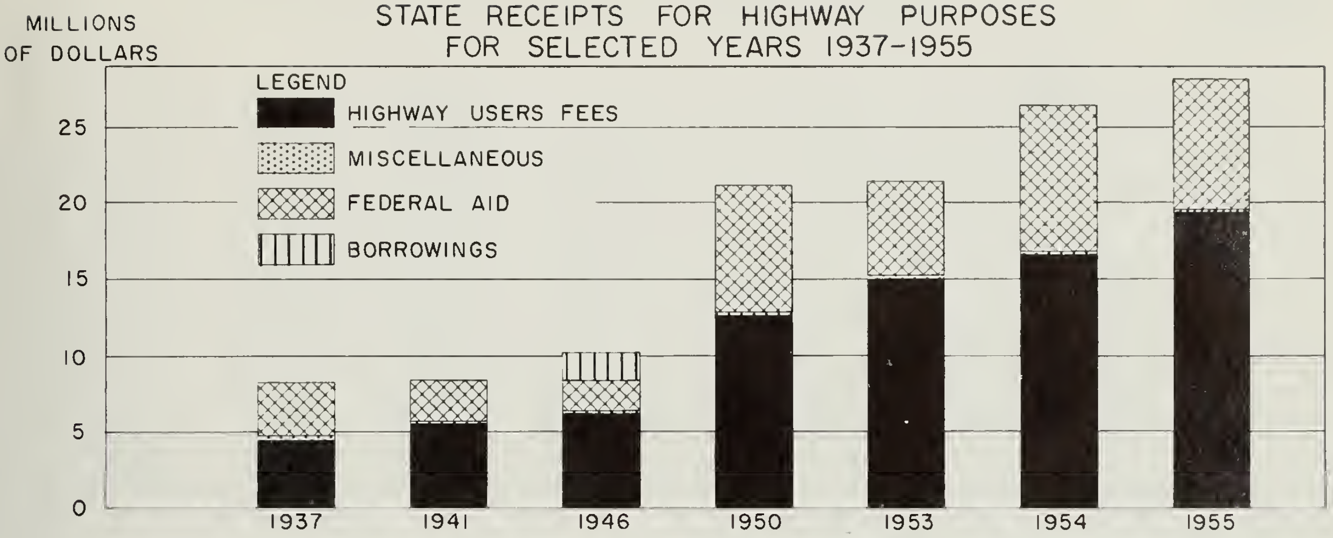


CHART 2-2

STATE EXPENDITURES FOR HIGHWAY PURPOSES FOR SELECTED YEARS 1937-1955

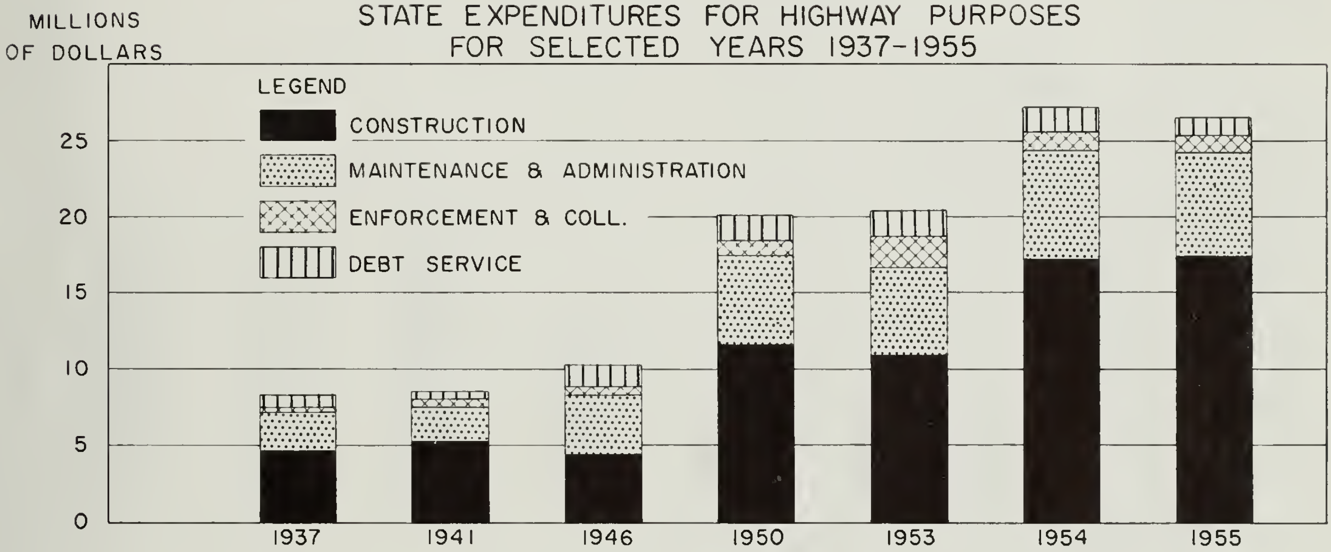


CHART 2-3

COUNTY RECEIPTS FOR HIGHWAY PURPOSES FOR SELECTED YEARS 1937-1955

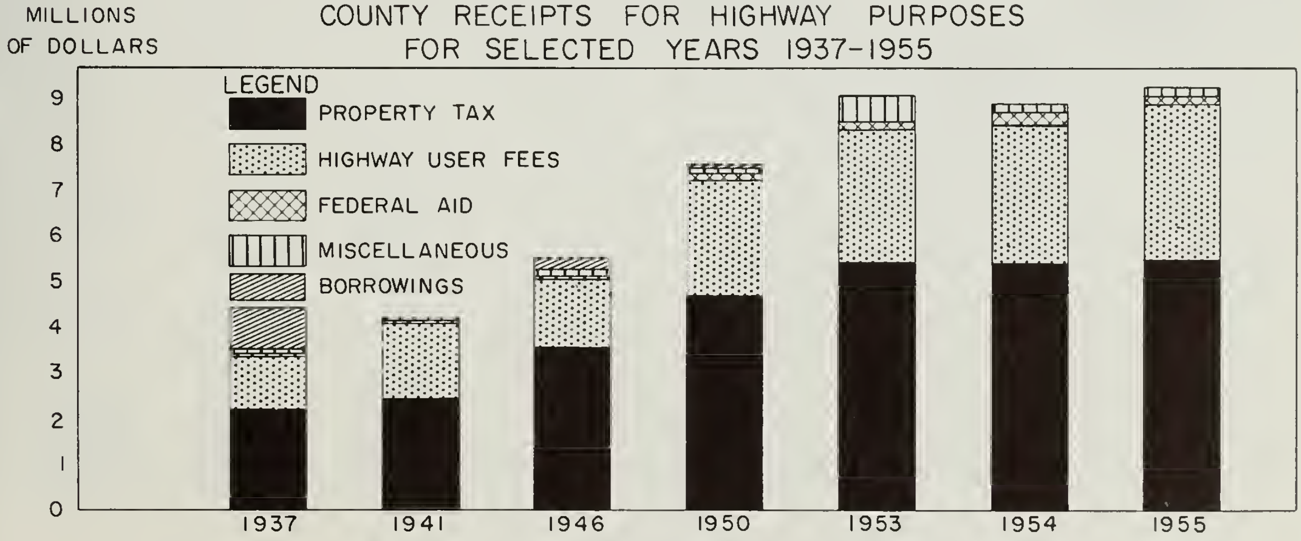


CHART 2-4

COUNTY EXPENDITURES FOR HIGHWAY PURPOSES FOR SELECTED YEARS 1937-1955

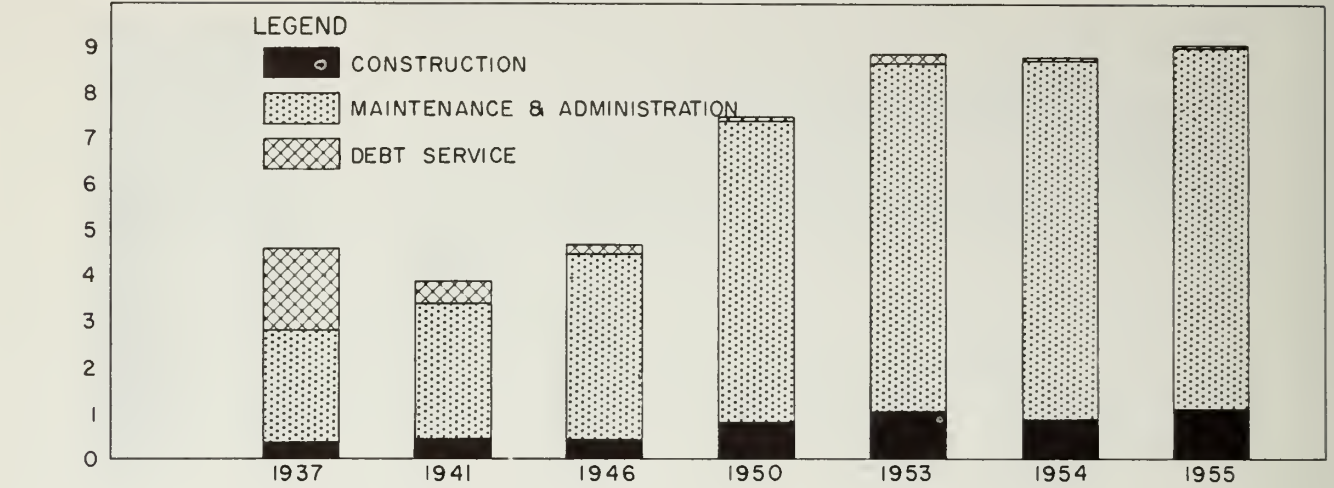


CHART 2-5

CITY RECEIPTS FOR STREET PURPOSES FOR SELECTED YEARS 1937-1955

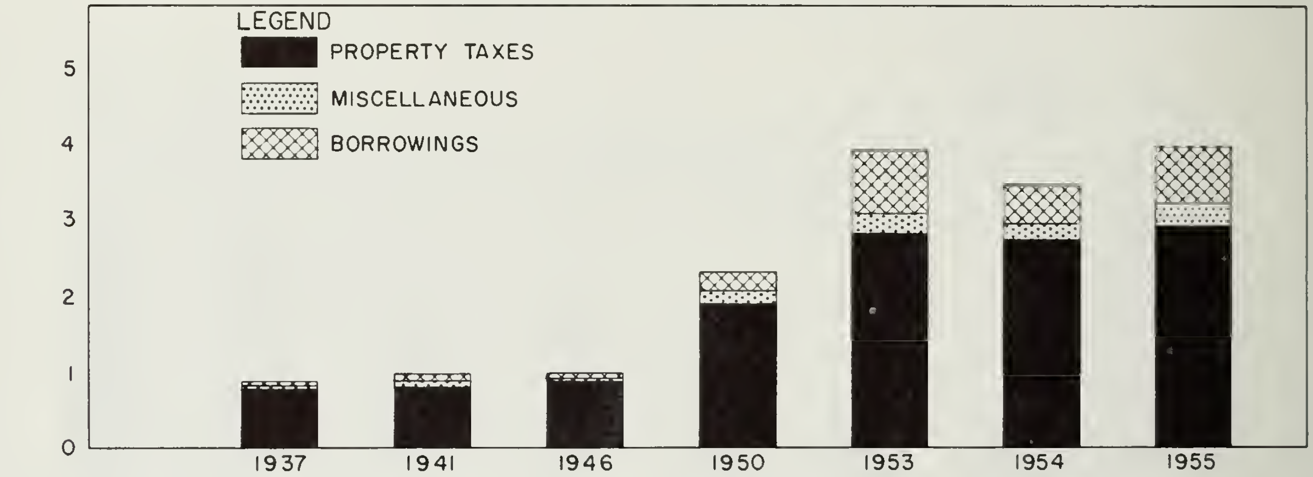
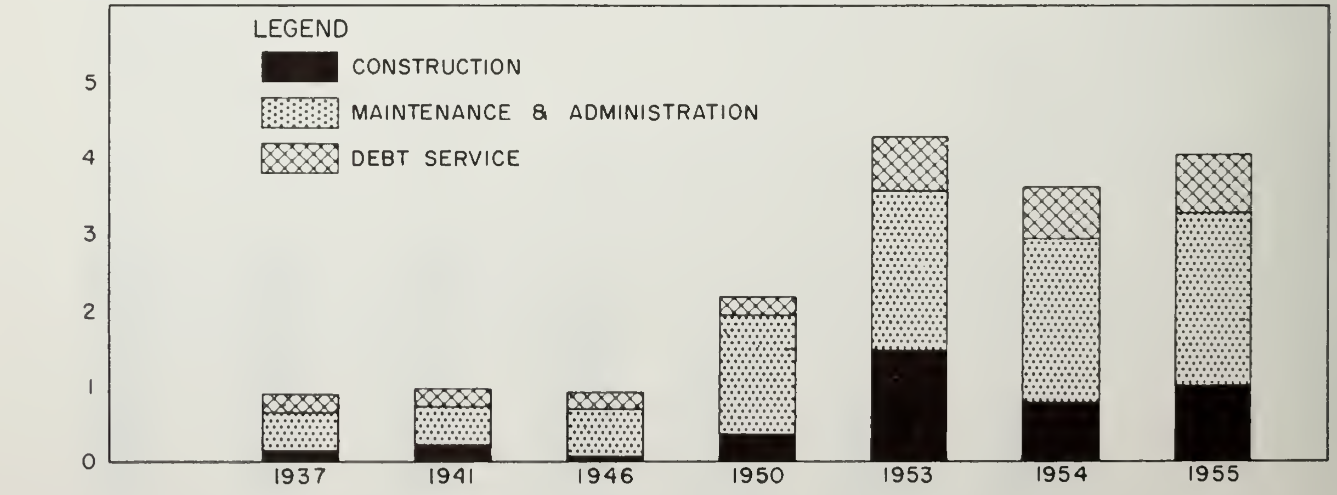


CHART 2-6

CITY EXPENDITURES FOR STREET PURPOSES FOR SELECTED YEARS 1937-1955



Apportionment of Federal-Aid Funds. The present method of apportioning Federal-Aid funds is as follows:

Primary funds are apportioned to the State by a formula based equally on factors of area, rural road mileages and population. The normal matching ratio of State and Federal funds is 50-50 but public lands states have a more favorable position. In Montana, the matching ratio is 56.91 percent Federal funds, and 43.09 percent State funds. Federal-Aid funds are apportioned by State law to the twelve financial districts within the State on the basis of incompleted system mileage in each district.

The distribution formulae to the states for the Interstate system are basically the same as the Primary, but the matching ratios under the 1954 Act were 65.53 percent Federal, and 34.47 percent State for Montana. Under the 1956 Act, the matching ratio in Montana for the Interstate was changed to 91.4 percent Federal and 8.6 for the State. It is probable that funds for this system will eventually be apportioned to states on the basis of need. Need of each state is to be based on the cost of completion of this system within a thirteen year period.

Secondary funds are apportioned in the same manner as Primary funds, except that rural population is substituted for total population in the formula. The matching ratio of State and Federal funds is the same as the Primary. State law directs that the total be apportioned to the counties of the State on the basis of equal value to land area, rural population, rural road mileage, and value of rural lands.

Urban funds are apportioned to states on the basis of urban population in urban areas of over 5,000 inhabitants. The matching ratio is the same as the Primary and Secondary systems. This money is then apportioned by the State to cities over 5,000 population in proportion to urban population in each city. There are 13 cities in Montana that are included under these provisions.

Montana's Share. Total Federal-Aid allotments to Montana from 1916 through 1955 have been approximately $144 million.

Federal-Aid Primary	$ 85,111,000
Federal-Aid Secondary	30,153,000
Federal-Aid Urban	2,673,000
Federal-Aid Interstate	1,007,000
Federal-Aid Grade Crossing Elimination	2,509,000
Emergency Work Relief	3,863,000
National Industrial Recovery Act	11,210,000
Works Progress Administration	6,399,000
Defense Highway Act	707,000
Total	$143,632,000

Of this amount the State has received approximately $129,851,000 on the basis of completed construction through 1955. The lag of $13,781,000 between total allotments and reimbursements represents encumbrances for construction projects under way and balances of funds not programmed or under agreement for specific improvements.

Current Legislation. In June of 1956 Congress gave final approval to a $32.9 billion Federal-Aid Highway Act. The bill calls for a thirteen-year program for the improvement of the Interstate System and a three-year plan for the improvement of the Federal-Aid Primary and Secondary systems. This proposed highway construction program, along with previous 1956 and 1957 apportionments, will provide approximately $124 million in Federal road construction funds for Montana during the next three fiscal years and $440 million by 1969 if the intent of Congress implied in the 1956 Act has been correctly interpreted.

Other Federal Funds. In addition to regular allotments of Federal-Aid funds, the State receives revenue from other Federal sources. The State Highway Department, since 1920, has received 18.5 percent of all U. S. oil royalties derived from leased oil lands within the State. This has amounted to approximately $4 million since that time. Currently this source is providing about two percent of total revenue for State administered highways.

Direct Federal Expenditures. There are certain cases where the Federal Government spends directly for construction of Forest highways and Forest Service roads. These funds are not handled through the State Highway Commission. In 1955, the Federal Government expended $5,351,000 directly on certain roads within the State. This was distributed to: $1,728,000 on Forest highways; $2,204,000 on Forest Development roads; and $1,419,000 on other roads such as Indian Reservations and National Parks.

The Bureau of Public Roads maintains completed Forest Highway projects for a period of one or two years after construction. At the end of this period the project is released to State or county responsibility in this regard. Forest Development roads are often maintained by Federal forces, but where the

Table 2-3

Status of Federal Aid Funds and State Matching Funds in Montana June 30, 1956

	Federal Funds Available	Federal Funds Now Matched[1]	Balance of Federal Funds Not Matched	State Funds Necessary to Match Balance[2]
Fiscal Year 1955	$ 9,167,781	$ 8,066,766	$ 1,101,015	$ 843,212
Fiscal Year 1956	13,531,734	6,819,817	6,711,917	4,607,862
Fiscal Year 1957	29,873,963	740,144	29,133,819	12,107,722
Fiscal Year 1958[3]	37,906,096	0	37,906,096	12,480,000

---

[1] Actually let to contract.

[2] State funds in the amount of $1,300,000 were available to provide matching money June 30, 1956, although this might be considered as working capital and not reasonably available.

[3] These funds, while allocated, can not be drawn upon as cash until July 1, 1957.

roads are in general use, the Federal government usually prefers to turn them over to local agencies for maintenance.

State Highway Expenditures. State revenues for highway purposes are used in part directly for collection and administration of revenues, for the construction, improvements, and maintenance of State highways, and for debt service on outstanding State highway obligations.

Since 1913, construction and maintenance expenditures have accounted for 87 percent of total State highway disbursements. Most of this has been expended on the Primary rural system and the Primary urban and for construction purposes on the Secondary.

Total expenditures on State administered highways during the period 1913 through 1955 were approximately $337 million. In the year 1955 they were $25.5 million.

Purpose	1913-1955 Amount (000)	 Percent	1955 Only Amount (000)	 Percent
1. Construction	$210,009	62	$17,432	68
2. Maintenance	83,720	25	4,997	20
3. Administrative and miscellaneous	23,641	7	1,799	7
4. Debt Service	19,598	6	1,310	5
Total	$336,968	100	$25,538	100

Statistical finance data for State administered highways is readily available since 1937. Information prior to this time was compiled from various surveys, histories, and early annual reports. The last highway report was prepared for the biennium ending December 1932.

Along with the complex methods required in gathering early statistical data it was a time consuming task gathering consistent information from numerous sources to supplement and explain these data. While compiling the data, it was apparent that a Highway Department annual or biennial report would have simplified this problem. In this connection it is noted that periodic reports of highway departments have been accepted methods of bringing the highway program to the highway user in many states. Similar use in Montana would be desirable.

County Road Finance

Size of Present System. Of the total 72,925 miles of highways within the State, the local Rural system comprises 61,638 miles and the Federal-Aid Secondary, 4,024 miles. This mileage amounts to approximately 90 percent of total mileage throughout the State. The counties are responsible for the maintenance of all this mileage, except for Federal roads in Forests, National Parks, and Indian Reservations that have not been turned over to local agencies. At present there are about 6,800 miles of Federal roads on the local rural system and 173 miles on the Secondary.

The local rural and Secondary rural consist of 49,017 miles of soil-surfaced, 14,960 miles of gravel-surfaced, and 1,632 miles of surface-treated roads. Connecting links of the Secondary system in cities total 53 miles with 2 miles soil-surfaced, 14 miles gravel-surfaced, and 37 miles hard-surfaced.

Source of Receipts. Public road building and maintenance was placed in the hands of the counties and county commissioners as early as 1869. County road and bridge revenues at this time, and up to 1913, came from two sources, the ad valorem property tax and the poll tax.

Finance data is not readily available for county roads prior to 1931. Since that time total county road revenues have been approximately $133 million.

Source	1931-1955 Amount (000)	 Percent	1955 Only Amount (000)	 Percent
Property Taxes	$ 81,794	61.3	$5,606	60.7
Highway User Taxes	42,859	32.2	3,261	35.4
Misc. & Unclassified	3,862	2.9	155	1.7
Borrowings	2,965	2.2	....	....
Federal Funds	1,888	1.4	209	2.2
Total	$133,368	100.0	$9,231	100.0

Property Tax and Poll Tax. The special road tax, or poll tax, was $3, or one day's labor in lieu of the fee. The option to work remained in effect until 1913, and in 1939 the tax was declared void. While this tax was in effect, it produced approximately $75,000 a year.

In general, funds for financing county and State roads until 1922 had been derived from county tax levies. The road levy on property then, as today, was not assessed against property within cities. The county bridge levy applies to all taxable property within the county.

Currently, the road levy is set at a ten mill maximum. A three mill maximum is provided for bridges with increase to five mills permitted in certain counties.

In 1955, the county road levy produced approximately $3.7 million, and the bridge levy $1.6 million for a total of $5.3 million. This was 61 percent of total county road and bridge revenue.

Registration Fees. From 1917 to 1921 the counties were apportioned 25 per cent and from 1921 to 1923, 50 percent of all motor vehicle registration fees. Since 1923 they have received 100 percent of the regular registration fees, with minor exceptions in two counties.

Since 1933, Silver Bow County has transferred a portion of its registration revenue to the city of Butte equal to 50 percent of the total fees paid by the people within this city. Walkerville, another incorporated city within the same county, came under a similar provision in 1945. Anaconda, in Deer Lodge County has received 25 percent of the registration revenues since 1945 with the same limitations mentioned above.

In 1955, registration fees amounted to approximately $3 million, or 34 percent of total county road revenue.

Since 1950, the counties have retained 5 percent of the use fees in effect from 1950 to 1952, and the Gross Vehicle Weight fees which are in effect today. Over this six-year period, the counties have received approximately $580,000 from this source.

THE RESULTS OF FEDERAL AID
THE MULLAN ROAD IN USE

There are over 14,000 miles of road in use in Montana today on which some type of direct or indirect Federal-Aid money has been spent. This includes practically all of the State Primary, 2,500 miles of Secondary, and over 6,000 miles of Forest Development Roads.

Courtesy: Montana State Highway Commission

Federal and State-Aid to County Secondary Roads. Since the Federal-Aid Secondary System was officially designated in 1944, total Federal apportionments and State matching funds have contributed approximately $39 million to this system. Of this the Federal apportionments amounted to approximately $22 million and the State's share approximately $17 million. The counties do not receive this money directly, but it is certainly no less a direct aid to these units. These are legally county roads. Only construction funds come from State and Federal levels. Maintenance and administration funds come from the local level, exclusively.

The counties have received approximately $2 million in direct Federal funds since 1931. These apportionments are from Forest Reserve appropriations, and other miscellaneous items. In 1955, these appropriations provided $209,000, or 2 percent of total county road revenue.

Borrowing for County Roads: Since complete finance data is not available for county roads prior to 1931, it is impossible to determine the total amount of county road and bridge bond issues prior to that time. We do know that in the Fall of 1919 the people approved highway bonds of $6.5 million.

Since 1931 the counties have issued approximately $3 million in road and bridge debentures.

The counties are permitted to issue bonds for all purposes up to 5 percent of assessed valuation of total county property. The amount currently permitted under this limitation is about $101 million. The total debt outstanding is approximately $6 million which leaves $95 million permissible addition to the debt.

At the end of 1955, four counties accounted for all the road and bridge bonds outstanding. This was a total of only $236,000 or 4 percent of total county debt for all purposes.

County Road Expenditures. For the four-year period of 1916 through 1919 the average expenditure by all counties in the State for road and bridge construction and maintenance was $3,790,000 per year. That was equivalent to less than $57 for each mile of public highway.

County expenditures for road construction during the years 1920 to 1926 were relatively large. This was the period when financial responsibility for road construction rested almost entirely upon the counties.

As the county road system expanded and the State began to assume greater responsibility for construction purposes county construction expenditures began to decrease and maintenance expenditures to increase. Since 1931, maintenance expenditures have been the major purpose of expenditures from county road funds. Maintenance expenditures have increased steadily, both in absolute terms and as a ratio of total expenditures.

Debt service payments reached $1,864,000 in 1937 but had decreased to $53,000 in 1955. The ratio of debt service expenditures to total expenditures was 32.9 percent in 1937. The ratio had decreased to 0.6 percent in 1955.

During the period 1931 through 1955, the county governments of Montana expended $132 million for road purposes. In 1955, expenditures were $9 million. The shift in emphasis of expenditures is substantial.

	1931-1955		1955 Only	
	Amount (000)	Percent	Amount (000)	Percent
Construction	$ 12,817	9.7	$ 947	10.3
Maintenance	98,863	74.5	7,653	83.5
Administration and Miscellaneous	6,408	4.8	449	4.9
Transfers to Cities	1,297	1.0	61	0.7
Debt Service	13,329	10.0	53	0.6
Total	$132,714	100.0	$9,163	100.0

Variations Between Counties. Total local expenditures for road purposes in the counties ranged from $794,000 in Cascade to $29,000 in Petroleum County in 1955. State-Aid in the form of Highway Department expenditures on Federal-Aid Secondary routes in various counties must be added to these figures to get total expenditures on county roads.

The great variation in expenditures in the different counties reflects a number of factors. Among the more important ones are variations in population, road mileage, traffic, standards, condition of existing roads, revenues available, and efficiency of road administration.

Expenditures Per Mile of Road. Data showing county expenditures per mile of county road are inetresting. For instance, Cascade County expended $794,000 in 1955, almost twice as much as the next highest county which was Silver Bow with $400,000. But in expenditures per mile, Silver Bow with $1,169 was almost twice as high as Cascade with $597.

Deer Lodge was the only other county with expenditures over $500 per mile; Gallatin, Missoula, Park and Yellowstone expended between $200 and $275 per mile. The forty-eight other counties expended less than $200 per mile. Seventeen counties expended under $100 per mile and three counties under $50 per mile. Petroleum County was the lowest with $40 per mile. Expenditures per mile for all counties in 1955 averaged $140. Detail is included in Appendix "A."

City Street Finance

Size and Surface Types. In 1955, total city street mileage in Montana was 1,565 miles. A total of 222 miles (14.2 percent) of city streets are urban extensions of State and county roads. The remaining 1,343 miles of residential streets can be further classified as 337 miles soil-surfaced; 474 miles gravel-surfaced; and 32 miles surface- treated.

Of the 123 incorporated cities within Montana, only 13 are over 5,000 in population, and there are 680 miles of streets within these cities.

Source of Receipts. City and town councils in Montana have authority to levy taxes for streets and alleys within a 10-mill limitation on property within incorporated limits.

When a district is created for the purpose of making special improvements of any kind, city or town councils must assess costs against property within the district. Payments for improvements may be spread over a term not exceeding 20 years, installments being payable annually.

Complete records showing city street receipts in Montana are available only for the years 1937 through 1955. Total annual receipts increased from $822,000 in 1937 to $3,985,000 in 1955. Along with this steady increase in revenue there has also been a significant shift in the relative importance of the various sources of receipts. Ad valorem levies and special assessments as a source of street funds have been steadily increasing since 1946. The increase in special assessments is reflected in an increase in borrowing through the issue of special assessment certificates. This has accounted for a significant portion of the increase in city borrowing from 1947 through 1955.

During this eighteen-year period, the cities of the State received $34,677,000 for streets. During 1955, only, these receipts amounted to $3,985,000.

	1937-1955		1955 Only	
	Amount (000)	Percent	Amount (000)	Percent
Property Taxes and Special Assessments	$25,783	74.4	$2,530	63.5
Borrowings	5,555	16.0	784	19.7
Appropriation from General Fund	1,034	3.0	447	11.2
Misc. & Unclassified	1,264	3.6	149	3.7
Highway User Taxes	957	2.8	55	1.4
Federal Funds	84	0.2	20	0.5
TOTAL	$34,677	100.0	$3,985	100.0

Although road-user taxes accounted for 2.8 percent of total revenue for all cities, these revenues were secured by the cities of Butte, Walkerville, and Anaconda only.

Allied City Street Receipts. In addition to regular street revenues, the cities also collect taxes for allied city street facilities, such as street lighting, sidewalks, storm sewers, and parking facilities. Such receipts during 1955 totalled $1,608,000. Of this amount $746,000 (46.4 percent) came from parking facility revenue; $611,000 (38 percent) from general property and special assessment levies; $151,000 (9.4 percent) from transfers from general funds; and $100,000 (6.2 percent) from bond issues. Historical data on these functions are not readily available.

Expenditures on City Streets. Total expenditures during the period 1937-1955 amounted to $34,619,000; annual expenditures increased from $886,000 in 1937 to $4,043,000 in 1955.

	1937-1955		1955 Only	
	Amount (000)	Percent	Amount (000)	Percent
Construction	$ 8,536	24.7	$1,007	24.9
Maintenance	19,057	55.0	2,184	54.0
Administration and Miscellaneous	520	1.5	37	1.0
Debt Service	6,027	17.4	754	18.6
Non-Highway Purposes	478	1.4	61	1.5
Total	$34,618	100.0	$4,043	100.0

In addition to the total amount expended by cities, the State, with matching Federal-Aid funds, has expended $3,560,000 since 1950 for construction and maintenance on urban extensions on the State system.

Allied Street Expenditures. Allied street expenditures for all incorporated cities in 1955 amounted to $1,711,000. This amount was distributed to: parking facilities, $826,000 (48.3 percent); street lighting, $699,000 (40.8 percent); sidewalks, $138,000 (8.1 percent); and storm sewers, $48,000 (2.8 percent).

Bond Issues for Street Purposes. The city or town councils in Montana may contract an indebtedness by borrowing money or issuing bonds within the constitutional limit of 5 percent of taxable property valuation, upon favorable vote of the taxpayers. The amount permitted under this limitation is approximately $29 million. Cities now have outstanding debts of about $6 million, which leaves a $23 million permissible addition to the debt.

The majority of Montana cities have no general city street debt. At the end of the 1955 fiscal year, $201,000 in general city street obligations were outstanding. Great Falls had $121,000 and the remaining $80,000 were distributed, $59,000 in cities with a population 0 to 1,000; and $21,000 in cities with a population 2,501 to 5,000.

Outstanding special improvement district obligations for city streets at the end of 1955 totalled $3,668,000.

Population Group	Amount Outstanding
0 to 1,000	$ 51,000
1,001 to 2,500	79,000
2,501 to 5,000	1,038,000
5,001 to 10,000	978,000
10,001 to 25,000	892,000
Billings	434,000
Butte	55,000
Great Falls	141,000

In addition to these city street obligations, Montana's cities have allied city street obligations for street lighting, sidewalks, and similar items. At the end of the 1955 fiscal year these outstanding special improvement and general obligations amounted to $743,000, as follows:

	Amount Outstanding	
Population Group	Special Improvement	General Obligation
0 to 1,000	$ 27,000	
1,001 to 2,500	66,000	
2,501 to 5,000	38,000	$38,000
5,001 to 10,000	107,000	
10,001 to 25,000	50,000	
Billings	353,000	
Butte	11,000	
Great Falls	53,000	

Glacier National Park

ONE REASON WHY MONTANA NEEDS GOOD HIGHWAYS

The scenic wonders that attract tourists from all over the Nation.
Montana's Third Largest Industry.

Chapter 3

HIGHWAY NEEDS vs. HIGHWAY REVENUES

The people of Montana have accepted what is generally considered a high tax structure for the improvement of their highways. Actually, when this tax structure is evaluated alongside of other costs of operation of a vehicle, it does not appear so large. As an example, one might take an ordinary passenger car about one or two years old. If this car travels 9,000 miles a year and gets 15 miles to the gallon of fuel it has annual costs totaling about $960.

Depreciation	$400
Insurance	100
Interest on investment @ 4%	100
Personal Property Tax	40
Gasoline—700 gals. @ $0.35 (Less State Tax)	168
Oil, tires, parking, Misc.	100
Registration Fee	10
State Gas Tax	42
Total	$960

Of the $960, only $52 represents State user taxes under current schedules. This is only 5.4 percent of the total cost of operating the vehicle. This is a very modest percentage for the smooth highway these dollars could assure. If a few more dollars or percentage points are necessary to put the highway plant in proper shape to serve the greater investment in vehicles, it would only be prudent to provide those dollars. And so we lead into the discussion of Highway needs, what we should have in the form of roads and streets versus highway revenues; what we are providing and what we should.

At the close of the engineering phases of this study, when all costs had been totaled and evaluated alongside of revenues and travel it appeared that costs of providing highways would amount to about 2.1 cents per vehicle mile of travel over the next twenty years. Persons experienced in this type work were exceedingly surprised at such a high per vehicle mile figure. But this was before it was realized that a large segment of this cost will be borne by the Federal Government throuh Federal-Aid allotments, Forest Highway funds, and other lesser aids. This makes the matching dollars possible at the same time that additional local revenues are provided for those roads and streets not eligible for Federal support.

Highway funds in Montana have been in a relatively constant rise since the arrival of the first motor vehicle. Even without change in the current tax structures they will probably continue to rise in future years due to increase motor vehicle usage, increases in general economic activity, area development, population increases, long term inflationary trends and other factors.

In the report of the engineering needs of the State, average annual and total program costs have been calculated for 10, 13, 15, and 20 year catch-up periods. The "catch-up" period refers to the time necessary to overcome the existing backlog of deficiencies. These are the figures used in the calculations of this financial study. They are based on sound engineering appraisal of costs, assuming forecasts of future traffic demands have been reasonably correct. They are also based on an assumption of constant costs—no inflationary price trends—in the future. Traffic forecasts for past purposes have, with little variance, always been on the low side. Also, inflationary trends of the past lead to a con-

Table 3-1

Highway Revenue Trends in Montana

	1937 (000)	1946 (000)	1950 (000)	1955 (000)	1960 (000)	1965 (000)	1970 (000)	1975 (000)
Total	$15,535	$17,201	$33,404	$46,775	$72,644	$78,529	$68,941	$74,828
Other	971	2,027	823	1,619	1,638	1,893	2,148	2,404
Property Tax	3,013	4,558	6,648	8,135	10,817	12,528	14,247	15,957
Federal-Aid	5,397	2,992	10,658	13,971	34,015	34,015	18,530	18,530
Highway User	6,154	7,624	15,275	23,050	26,174	30,093	34,016	37,937

clusion that constant costs just don't happen historically and higher costs, or less value per dollar, might be expected in the future. It would seem that the possibility of inflationary trends in future highway costs has been increased by the impact of the large Federal-Aid program in all states which is now a reality.

Regardless of these features, it becomes necessary to accept the costs developed in the engineering analysis as valid, at the same time realizing the conservative nature of the estimates.

The estimate of total revenue needed to accomplish the programs outlined in the engineering analysis is large but it must be recognized that the number of years for accomplishment is also considerable, and the life of the investment dollars is even longer. The twenty year costs over the several accelerated periods studied are:

Catch-up Period	Total Program Cost for 20 years[1]	Estimated Funds Available[2]	Total Revenue Shortage
	(000)	(000)	(000)
10 Years	$1,580,444	$1,528,659	$51,785
13 Years	1,580,389	1,528,659	51,730
20 Years	1,580,274	1,528,659	51,615

[1] Includes construction, maintenance, administration. In all cases the Interstate System is included at 13 years, the expressed intent of Congress.

[2] See Appendix tables for details of forecast.

One cannot help being impressed by the fact that regardless of the length of the catch-up period, the total outlay over the 20-year period remains about the same—about one and a half billion dollars. If this fact is coupled with obvious benefits from highway improvements, it becomes a graphic illustration of the adage that good roads don't cost, they pay. Estimated revenues are the same regardless of the catch-up period but it is probable the shorter period would induce more traffic and consequently more revenue. Based on these figures, it appears that there will be a total shortage on Montana of meeting all program costs in the next 20 years of about $52 million. This is regardless of the acceleration period and represents a revenue shortage of about $2.6 million per year. A closer analysis will show that while this is the total shortage the situation on a year-to-year basis varies. As an example, the additional revenue requirements each year for the first 10 years of the 20-year catch-up program would be substantially above the $2.6 million, while in the last 10 years, annual revenues would be greater than annual expenditure requirements. This calls for a detailed analysis of credit financing, a subject covered in Chapter 4.

Also, while the $2.6 million shortage is the average annual figure for all units, county, city and State, it does not fully reflect the critical situation at each level. This can be shown better by a more detailed look at a particular catch-up period.

Table 3-2

Total Needed Expenditure and Revenue for 20—Years
To Implement 13—Year Catch-up Period

Unit	First 13 years (000)	Next 7 Years (000)	Total 20 Years (000)
State[1]			
Program Costs	$ 755,079	$127,015	$ 882,094
Available Revenue	670,682	289,218	959,900
Revenue Needed	$ 84,397	*$162,203	*$ 77,806
County[1]			
Program Costs	$ 434,226	$155,155	$ 589,381
Available Revenue	295,714	179,910	475,624
Revenue Needed	$ 138,512	*$ 24,755	$ 113,757
City			
Program Costs	$ 75,517	$ 33,397	$ 108,914
Available Revenue	54,965	38,170	93,135
Revenue Needed	$ 20,552	*$ 4,773	$ 15,779
Total			
Program Costs	$1,264,822	$315,567	$1,580,389
Available Revenue	1,021,361	507,298	1,528,659
Revenue Needed	$ 243,461	*$191,731	$ 51,730

*Surplus

[1] Federal-Aid Secondary funds and matching revenue included under counties. Forest Highway funds are under State revenues. State Highways through cities are included under State.

CHART 3-1

HIGHWAY REVENUE TRENDS

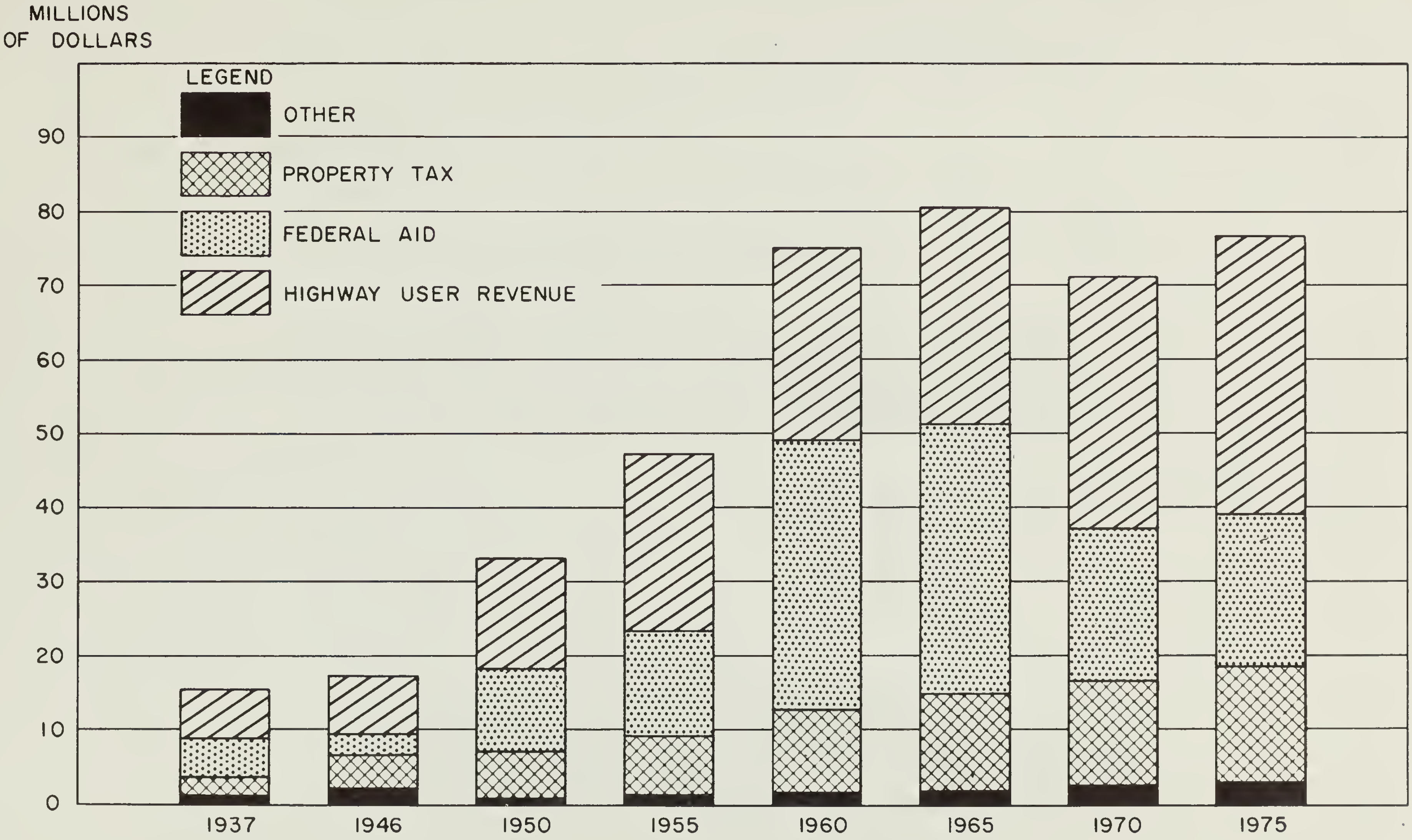


CHART 3-2

PROGRAM COSTS VS REVENUES

13 YEAR CATCH UP – 20 YEAR TOTAL PERIOD

STATE

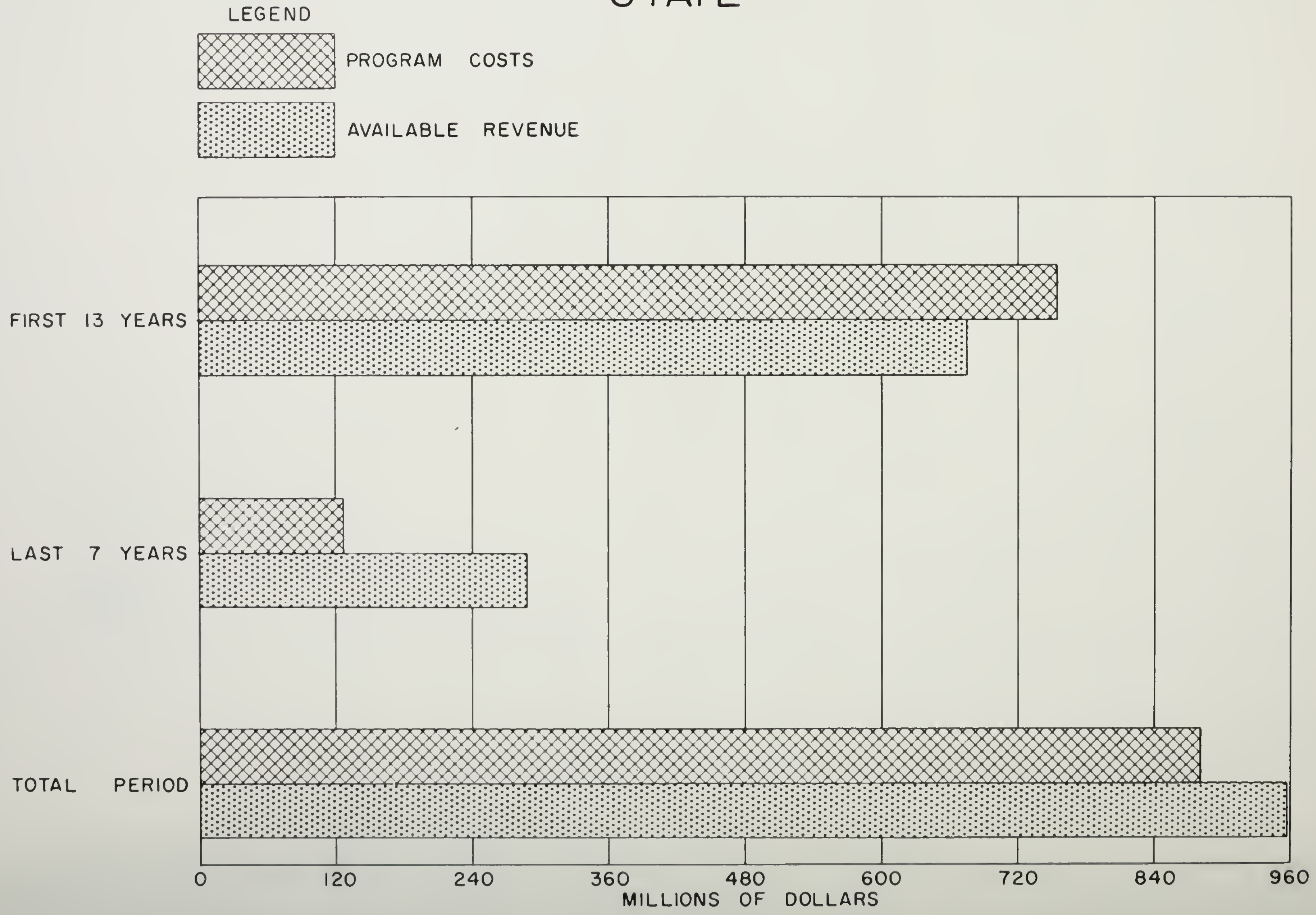


CHART 3-3

PROGRAM COSTS VS REVENUES

13 YEAR CATCH UP – 20 YEAR TOTAL PERIOD

COUNTIES

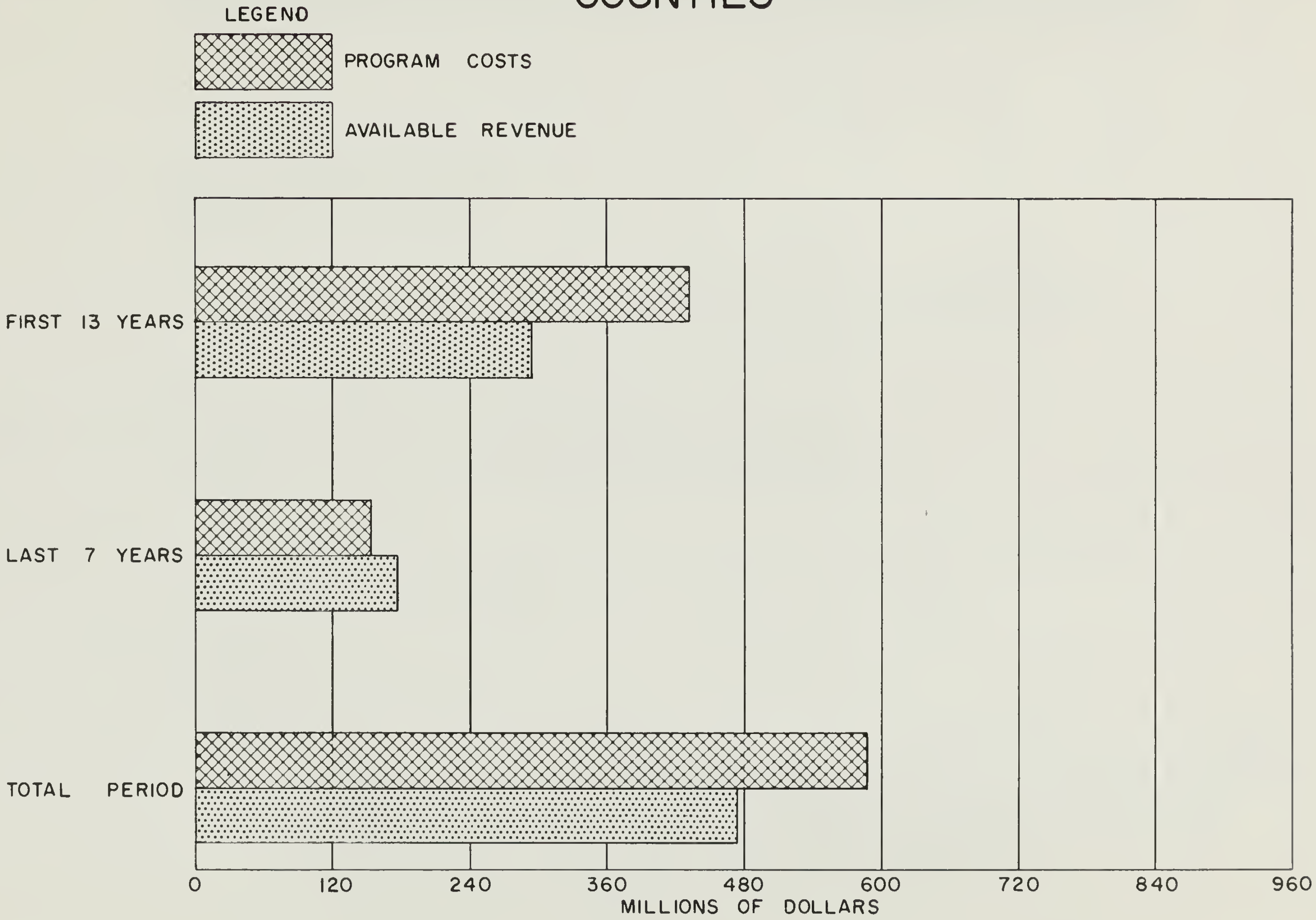


CHART 3-4

PROGRAM COSTS VS REVENUES
13 YEAR CATCH UP – 20 YEAR TOTAL PERIOD
CITIES

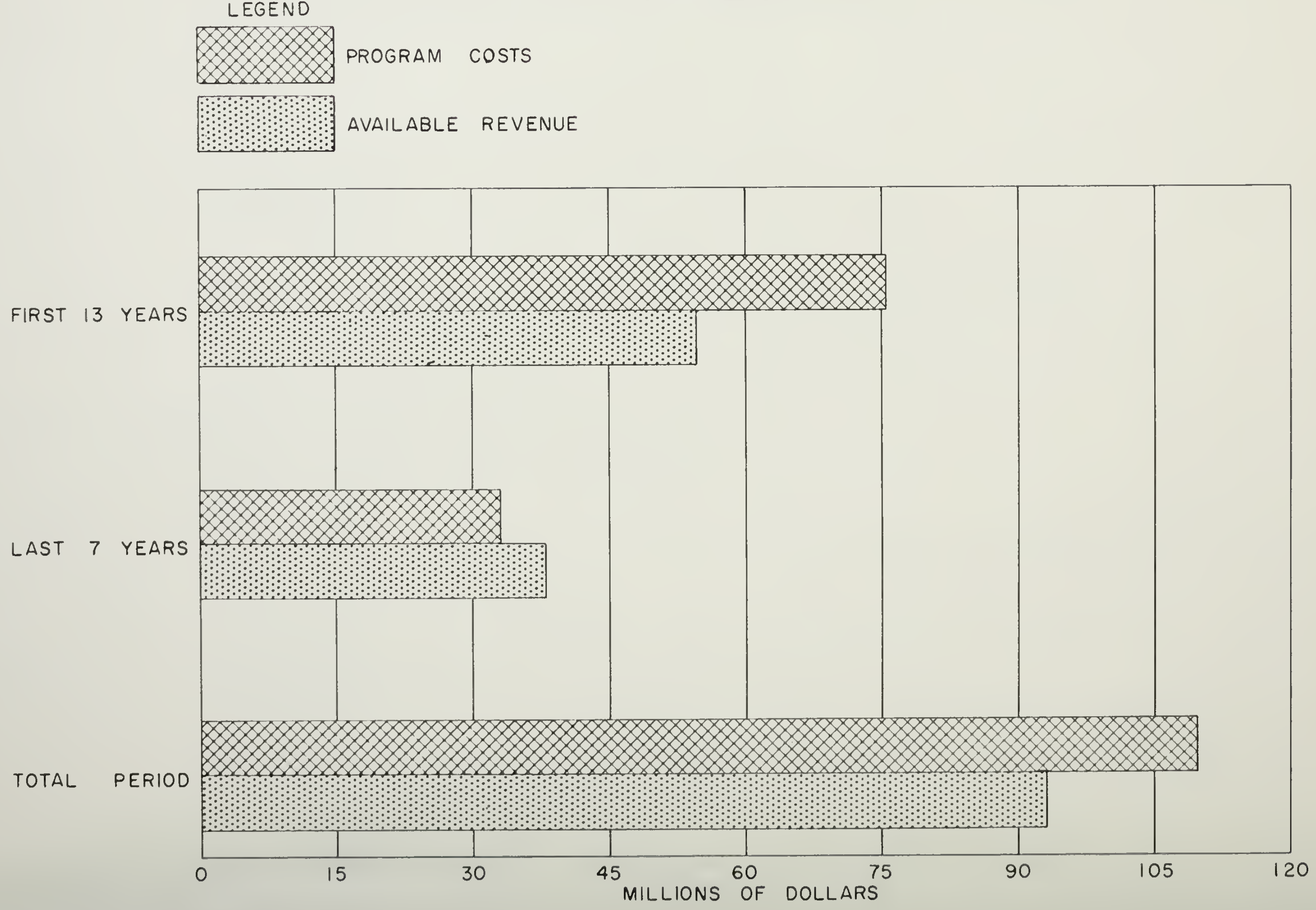
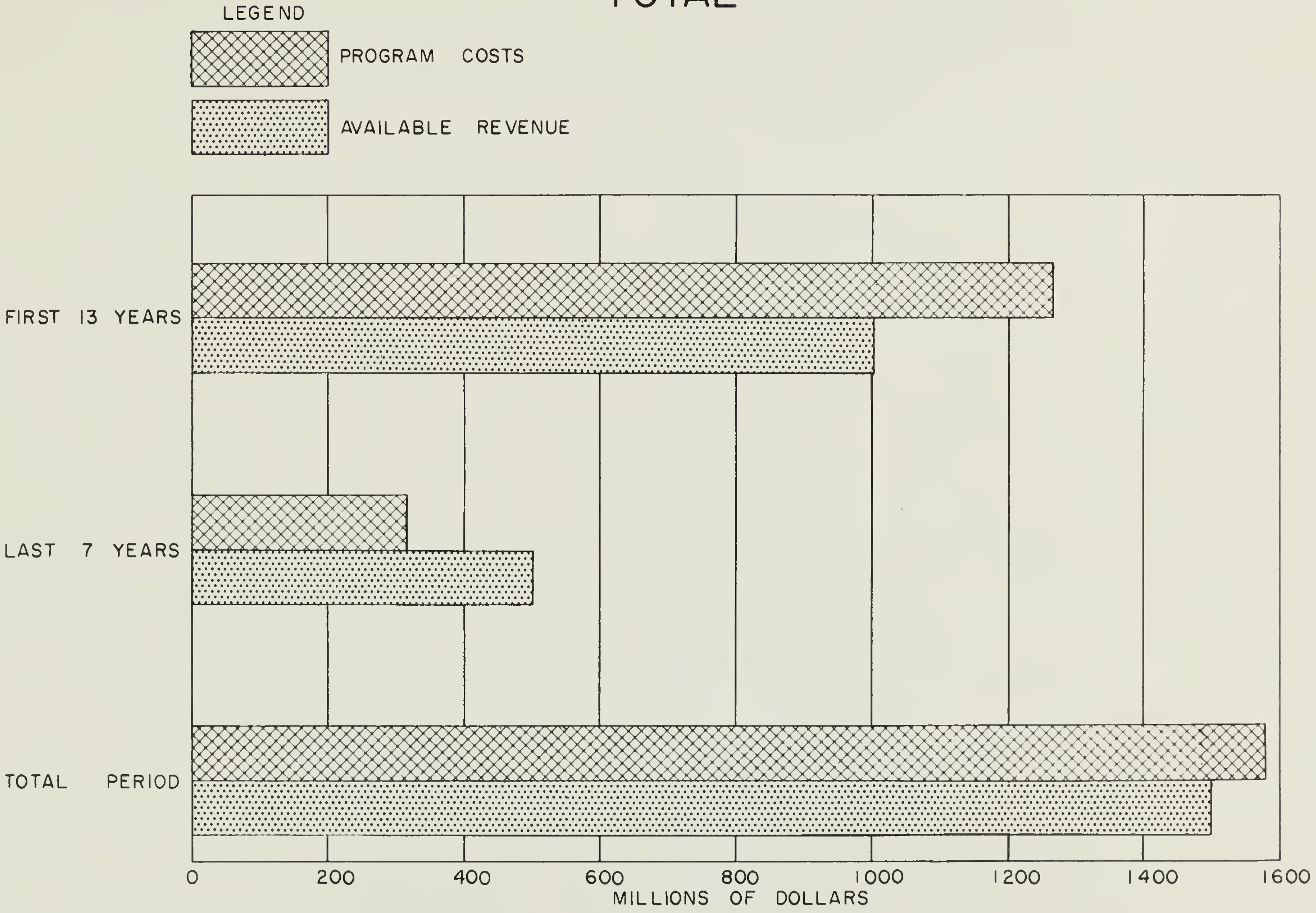


CHART 3-5

PROGRAM COSTS VS REVENUES

13 YEAR CATCH UP – 20 YEAR TOTAL PERIOD

TOTAL



As a means of illustration, the 13-year catch-up period has been used. It would seem that a lesser period, say 10 years, as found feasible engineering-wise, might be better but the 13-year catch-up period adopted by Congress has set the tempo. If 13 years is to be the catch-up time for the most important traffic arteries it would normally be difficult to justify a shorter period for routes of relatively lesser importance.

One additional feature is not shown directly in these figures. If we examine the data further, we find that one county may have a surplus of funds over the total 20-year period while others may have a deficiency much greater percentage-wise than indicated here. The same variations can exist among cities. It is for this reason that frequent mention is made that Statewide revenue should be allocated on a needs basis. This is an easy step for Montana since its financial district law has operated on at least a theoretical needs basis for many years. One feature not specifically mentioned would be a presupposition that all counties and cities would levy property taxes to the maximum permissible for roads and streets since that assumption has been made in estimating total revenues available. Indeed there are but few units that do not now levy to the fullest extent permitted by law.

Referring to table 3 - 2 the surplus of funds in the last 7 years for all units and actually for the full 20-year period under the State category is perhaps the most spectacular observation. The revenue items included in the table are all current sources and rates merely expanded on a conservative basis to future years. A portion of this indicated surplus could easily be shifted to the local problem by allocation to the cities and counties of a specific amount to be apportioned on the basis of need. This revenue along with Federal-Aid and matching funds could be administered through a special State-Aid division of the State Highway Department with certain prequalification requirements regarding administrative and technical arrangements.

The revenue shortage as noted is about $52 million, the same $2.6 million annually, mentioned previously. This leaves a total problem over the twenty years of providing about this amount additionally each year and arranging to have the funds and surpluses allocated to those units of government where the need exists.

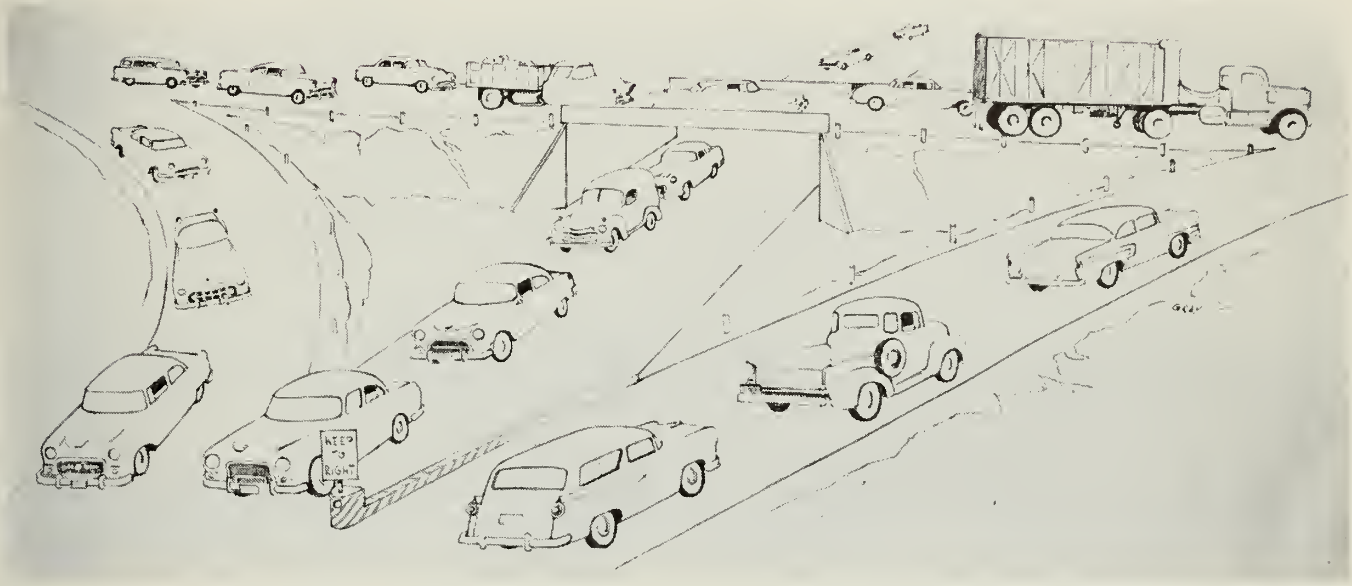
The alternative to a user tax increase of substantial proportions in catch-up years would be some type of credit financing for the relatively long investment life improvements that will be built on the Interstate, Primary and higher type secondary roads with a pay-as-you-go process for lower type roads and streets with short investment life. The possible alternates along this line are covered in the following Chapter.

Actually the big problem is not this additional revenue but rather how to get it back to the unit and roadway where the need exists. This will be covered in more detail in Chapter 7.

THE HIGHWAY IS PAID FOR— ARE THE VEHICLES?

Which Wears Out The Faster Vehicle Or Highway?

?



Chapter 4

HIGHWAYS ON THE INSTALLMENT PLAN

In the preceding chapter it was noted that current revenue sources will provide a surplus of revenue over the next twenty years as far as the State Primary program is concerned. However, a marked deficiency in revenue for the Secondary and local systems was observed. It was also noted that revenues in the early part of the period would be inadequate to provide a reasonabl catch-up construction program—say, 13 years—for the major systems even though a State surplus did result over the total period.

Pay-as-You-Go vs. Pay-as-You-Use.

Being able to point to a large construction backlog is not an uncommon situation in the highway and street picture of any state today. It is a result of inadequate expenditures for highways in past years to even keep abreast of the current needs. These needs have now accumulated into a backlog that can hardly be taken care of in any reasonable period on a pay-as-you-go basis unless user fees are increased to prohibitive levels. If fees are not to be raised to excessive levels there remain only two clear-cut alternatives—one, to increase fees moderately and make-do with existing facilities until the backlog of needs can be gradually worn away and the other, to borrow the money for the facilities and pay for them as they are used. The first procedure has the appearance of avoiding direct interest payments but this is rather imaginary. Interest costs are never really avoided by a pay-as-you-go procedure since current users are required to pay more in taxes and are thus deprived of funds that have value to them. It should be remembered that in economic terms, interest is a cost associated with any capital investment whether it is or is not actually paid to lenders.

The second procedure, borrowing, which we might term pay-as-you-use, has the advantage of providing safe and adequate facilities at the earliest possible date. These facilities will save the users in operating costs of their vehicles, in reduced accident costs, in travel time and numerous other ways. In addition, it is likely that the better facilities will induce additional traffic which could permit accelerated reduction of the debt incurred.

Certainly, the method of stretching the costs of highways over many years has a less shocking effect on the pocketbook nerve of the highway users. This procedure of stretching costs over the years is one of the factors permiting the citizen of this country to enjoy the use of homes, furnishings, electrical appliances, television sets and other necessities and luxuries that would gather dust in the warehouse if a cash economy, or pay-as-you-go concept were followed in acquiring these conveniences. It is estimated that 65 to 70 percent of the automobiles of the country, new and used, are paid for on some type of credit terms. It is reported further that new credit in the amount of over $12 billion each year is extended on the rolling stock on our highways and the amount outstanding at any one time is in excess of $15 billion. This is over half of all installment credit outstanding for all purposes. This credit is extended on a product that has relatively short life so far as collateral is concerned while we attempt to place our really long-term investment in highways into a pay-as-you-go situation. This is upside down so far as economic theory is concerned.

Financial Planning

The long-term investment life of highways may be considered as susceptible to credit financing. This is particularly true of the high type highway but is also true for some aspects of even the lowest type road. Right-of-way for example, has a practically perpetual investment life. Grading of any highway, while it remains in the same traffic carrying category, has a long life span. Structures of steel and concrete can be assigned long life expectancies and high type pavements can be expected to remain in service in excess of thirty years if they are properly designed and do not become functionally obsolete.

The problem of designing a financial plan for highways is just as important as that of determining the physical needs and estimating the direct costs. In designing a financial plan, there are several features that must be weighed. First, the plan should provide for an accelerated improvement program that will afford the desired adequacy in a stated number of years. The highway needs reported in the engineering study have been compiled on the basis of urgency. The term, "urgency" implies the need for prompt attention and since a 20-year period is usually considered as a generation, it is not likely that such a long period could be used in fitting a program classified as urgent. In thinking of such plans a term of 5 to 15 years is frequently fixed upon and for analysis in Montana, it is believed a 13-year catch-up program period might be feasible for the major systems. A second feature of a financial plan is that it should provide for administration, maintenance and other normal obligations which will accure through the years. Third, the plan should provide for meeting all interest and principal charges on any debt incurred in financing the accelerated program, and fourth, the plan should provide such revenues, in addition to other commitments, as are necessary to meet the gradually increasing needs for replacement and expansion.

In analyzing problems of this nature in other states, a procedure has been adopted known as the "cut and fill concept." This concept assumes that only minimum rise in tax rates is necessary since the capital investments are spread over a great many years. Certainly without this concept, it would be necessary to have a large tax increase in the early years of an accelerated program to defray the immediate costs and then a sharp tax reduction in the years following the accelerated period.

Long Range Projections

As a method of positioning the really long-term aspects of highway construction in Montana, the point of departure is provided by the annual program costs developed for the next twenty-year period. These figures are developed for various catch-up periods in the engineering analysis and presented in the publication entitled, "Moving Ahead on Montana Highways."

Techniques for projecting life expectancies of highway facilities have been developed to rather fine points by specialists in the Bureau of Public Roads. Since annual program costs were developed in the engineering analysis for only a twenty year span, the assistance of the Bureau of Public Roads was called upon in the extension of the 20-year figures into a third and fourth decade. Unfortunately, it was not possible in the time available to undertake a thorough-going investment analysis which would lead to the most reasonable forecast of needs for this second twenty year period (1977-1996). In spite of this short coming, valuable guides were available from data presented for corresponding systems and on a forty year basis, to the National Congress in connection with the so-called "Section 13 Study." The total results of these estimates are shown in program costs columns of Tables 30 to 33 in Appendix A. As an overall evaluation of these forecasts it might be noted that they are based on current dollar values. Any inflationary trend would tend to make the costs higher than shown. On the other side of the ledger it should be noted that it appears to be the consensus among those responsible for the first 20-year estimates (1957-1976) that the second 20-year estimates (1977-1996) may be somewhat too high. In view of the quality of construction proposed in the first 20-year period, it is possible that replacement costs are figured at too high a level in the second twenty years. Since this would be in the direction of conservative calculation and to a degree counters the possibility of inflationary trends, it is believed these figures are sufficiently firm for planning purposes.

Charts 4-1, 4-2, 4-3, and 4-4 show a year by year appraisal of revenue trends versus program expenditures at State, county, city and local levels. In drawing these profiles it was assumed that the major systems, primary and secondary in both urban and rural areas, would be completed in a 13-year catch-up period and local systems in a 20-year period. The total deficit at the county and city levels amounts to about $6.5 million per year, average, for the first 20-year period. After that time, if earlier deficits have been met, city revenues appear to be slightly more than adequate to cover continuing programs. State sources appear to be abundantly adequate to meet requirements at any time after the 13th year. Current county sources, on the other hand, are grossly inadequate in the first 13 years, become adequate between the 13th and 23rd year, (assuming earlier deficits are covered) and

HART 4

HIGHWAY PROGRAM COSTS COMPARED WITH REVENUES – PRIMARY HIGHWAYS

(13 YEAR CATCH-UP PERIOD INCLUDING INTERSTATE & URBAN EXTENSIONS)

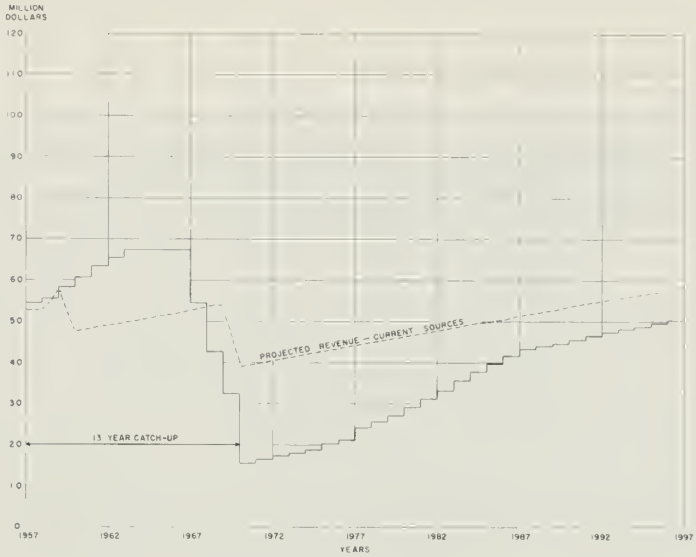


CHART 4-2

HIGHWAY PROGRAM COSTS COMPARED WITH REVENUES – COUNTY SYSTEMS

(13 YEAR CATCH-UP PERIOD FOR SECONDARY SYSTEM & 20 YEARS FOR LOCAL ROADS)

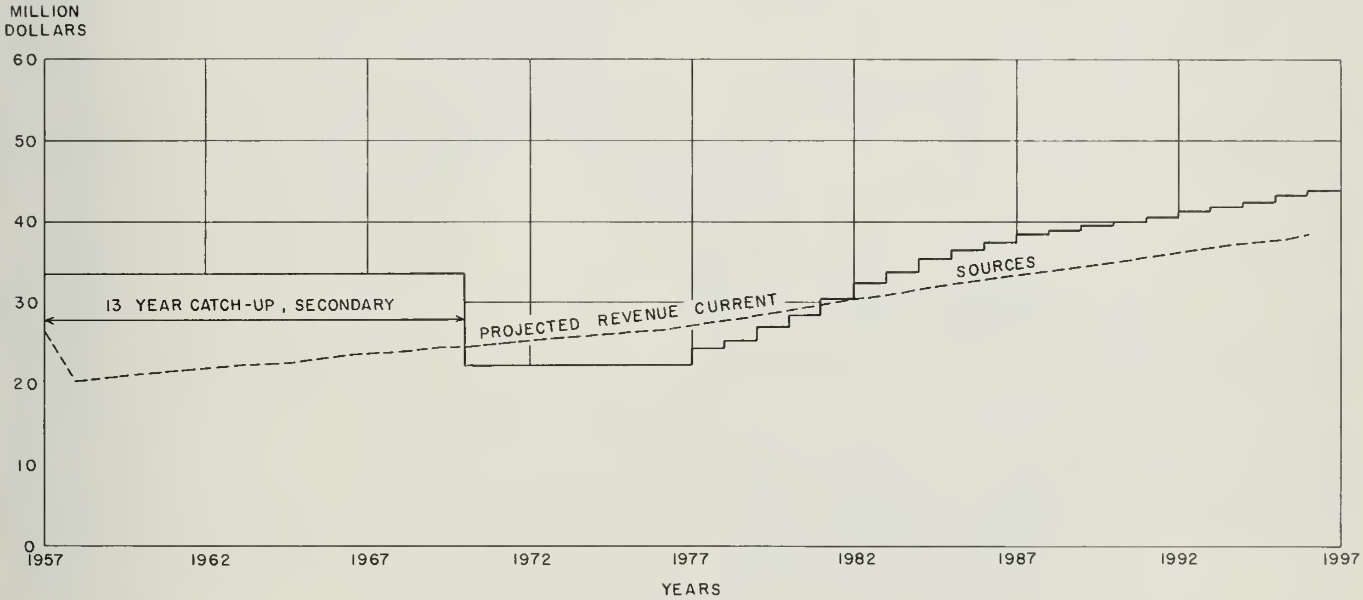


CHART 4-3

HIGHWAY PROGRAM COSTS COMPARED WITH REVENUES – CITY STREETS

(13 YEAR CATCH-UP PERIOD FOR ARTERIALS – 20 YEARS FOR LOCAL STREETS,
URBAN EXTENSIONS ARE INCLUDED IN "CHART 4-1")

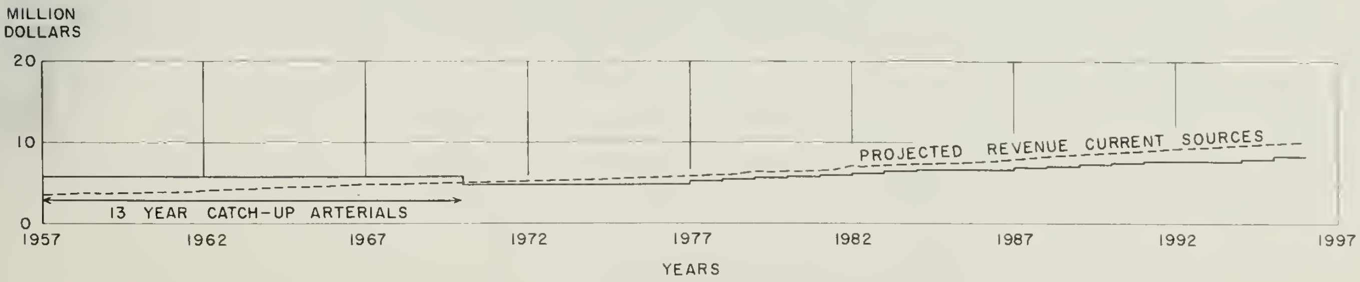


CHART 4-4

HIGHWAY PROGRAM COSTS COMPARED WITH REVENUES - ALL SYSTEMS

(PRIMARY & SECONDARY HIGHWAYS, 13 YEAR CATCH-UP PERIOD, LOCAL SYSTEMS 20 YEARS)

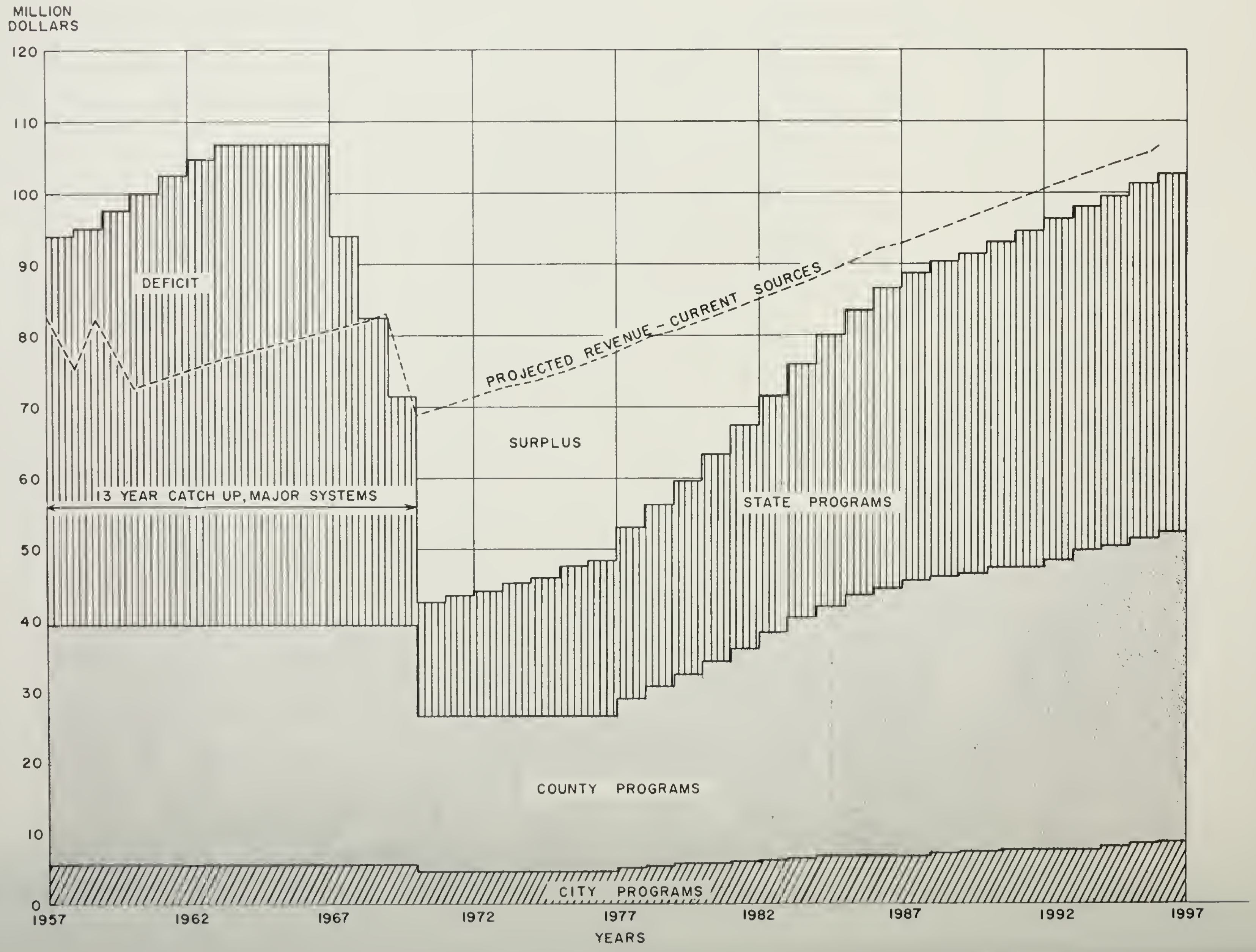


CHART 4-5

PLAN-I

13 YEAR CATCH-UP PROGRAM FOR PRIMARY HIGHWAYS, WITH BORROWING

THIS CHART ASSUMES THAT A 13 YEAR CATCH-UP PERIOD WILL BE ACCOMPLISHED FOR PRIMARY HIGHWAYS ONLY, WITH STATE REVENUES ALSO BEING USED TO MATCH FEDERAL AID SECONDARY FUNDS AS THEY BECOME AVAILABLE. NO PROVISION IS MADE FOR TOTAL NEEDS ON THE SECONDARY SYSTEM OR THE DEFICITS TO COVER NEEDS ON OTHER ROADS AND STREETS.

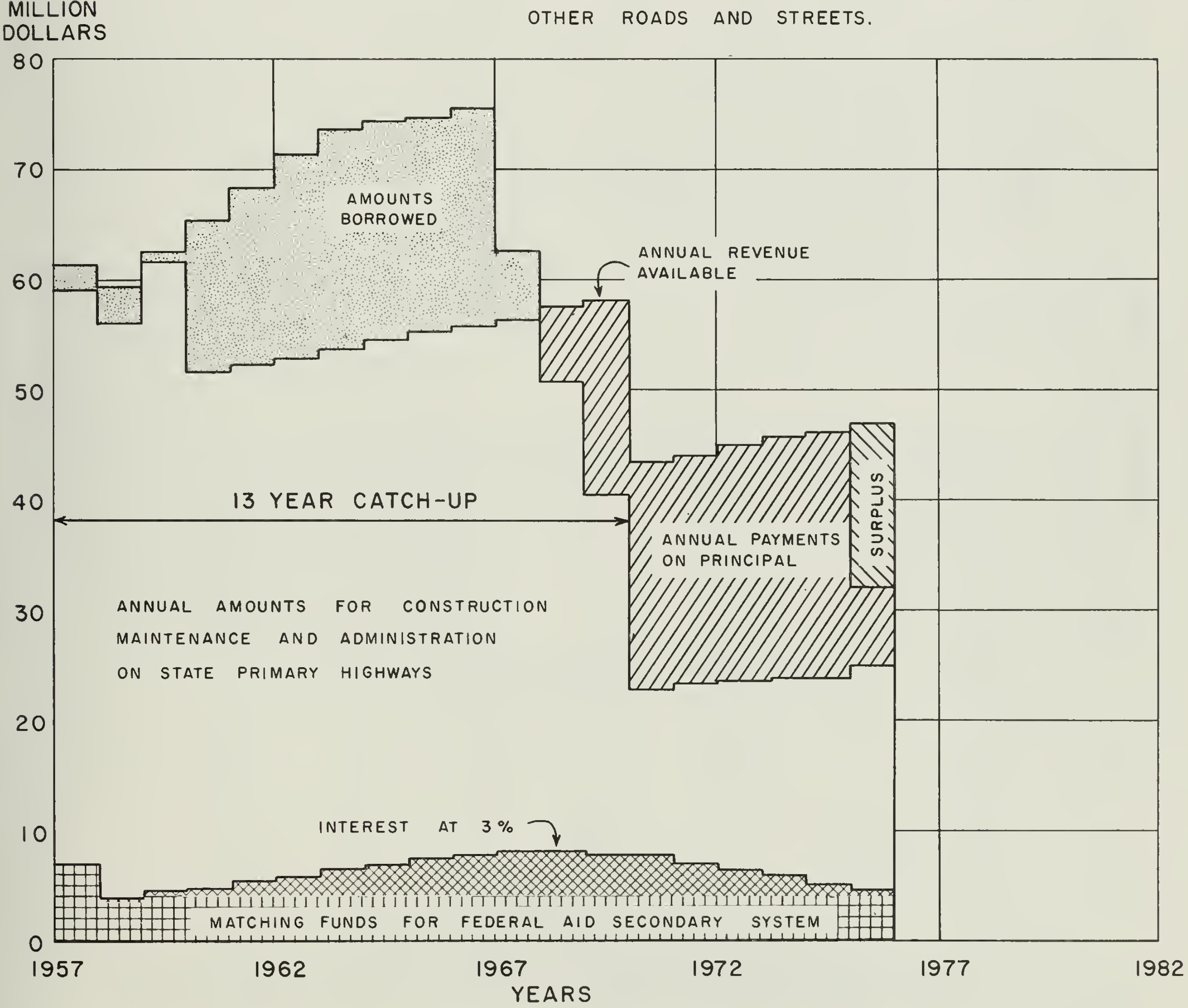
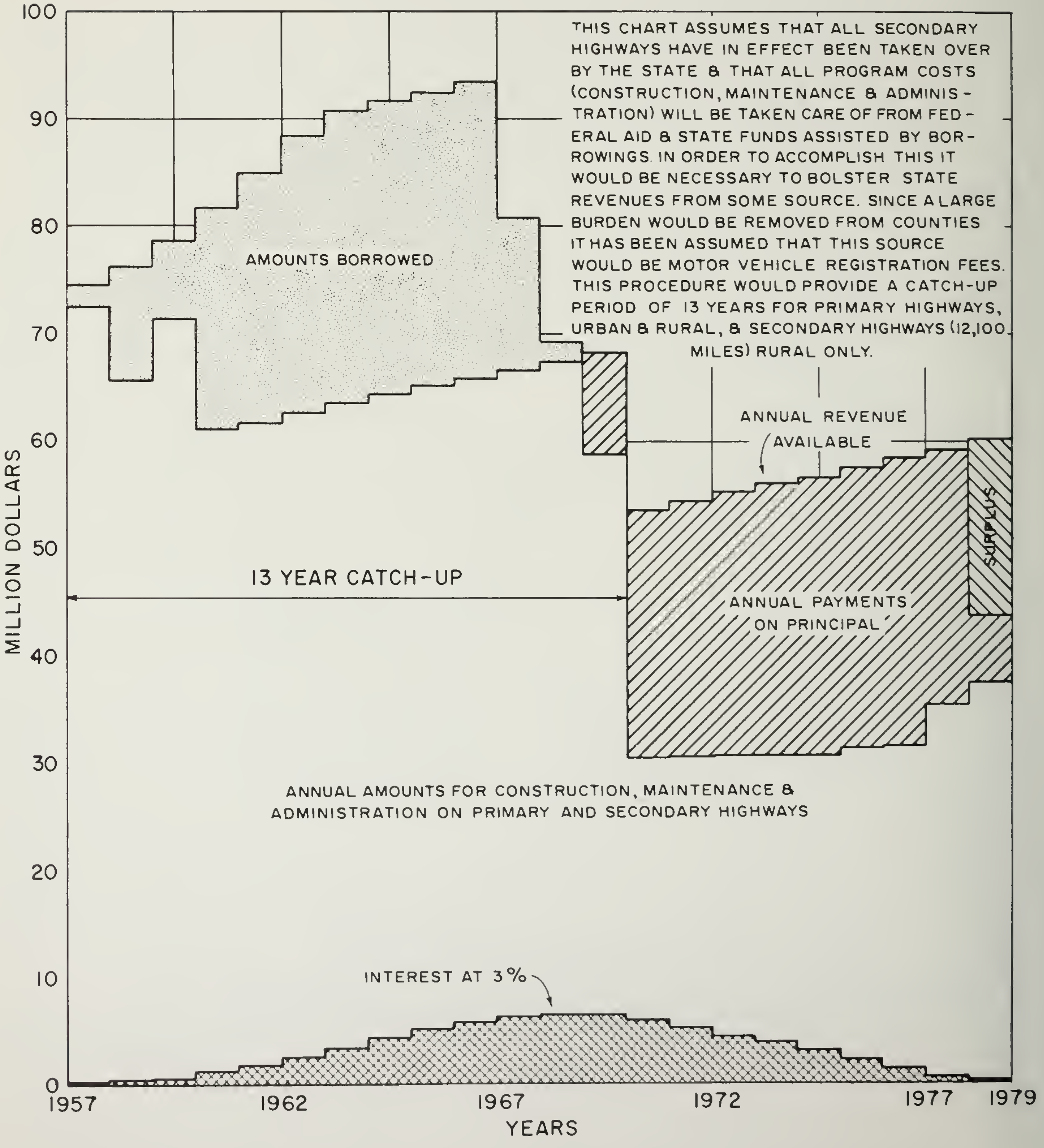


CHART 4-6

PLAN 2

13 YEAR CATCH-UP PROGRAM FOR PRIMARY HIGHWAYS AND SECONDARY RURAL HIGHWAYS WITH BORROWINGS



THIS CHART ASSUMES THAT ALL SECONDARY HIGHWAYS HAVE IN EFFECT BEEN TAKEN OVER BY THE STATE & THAT ALL PROGRAM COSTS (CONSTRUCTION, MAINTENANCE & ADMINISTRATION) WILL BE TAKEN CARE OF FROM FEDERAL AID & STATE FUNDS ASSISTED BY BORROWINGS. IN ORDER TO ACCOMPLISH THIS IT WOULD BE NECESSARY TO BOLSTER STATE REVENUES FROM SOME SOURCE. SINCE A LARGE BURDEN WOULD BE REMOVED FROM COUNTIES IT HAS BEEN ASSUMED THAT THIS SOURCE WOULD BE MOTOR VEHICLE REGISTRATION FEES. THIS PROCEDURE WOULD PROVIDE A CATCH-UP PERIOD OF 13 YEARS FOR PRIMARY HIGHWAYS, URBAN & RURAL, & SECONDARY HIGHWAYS (12,100 MILES) RURAL ONLY.

then again become inadequate. It is difficult to suggest any plan for the inadequacies that develop in the 23rd year in counties. It could be adjusted in those years by some debt refunding or similar procedure. Nevertheless, the profile of revenue and needs for all units of government suggest a bond issue of fairly large proportions in the first 12 or 13 years to be retired over the following years. The amount of bonds issued and the period of retirement depend on the scope of the plan. Three plans designated, Plan I, II, and III are presented here for evaluation. The figures for the several plans are shown in Table 4-1, 4-2 and 4-3, and are shown graphically in Charts 4-5, 4-6 and 4-7.

An infinite variety of analyses of credit financing can be made. Actually, many were made by the staff arriving at the particular presentations included here. Many analyses attempted proved impractical in that sufficient revenues could not be anticipated to encompass all requirements of a financial plan. Any one of the three plans presented could be adopted to accomplish the highway needs of the state and local governments in the varying degrees indicated. The degree of attainment of highway adequacy is a matter of policy to be set by the legislative assembly.

FINANCIAL PLAN I

This plan would provide an adequate primary system, urban and rural, within a 13-year catch-up period. It would also provide necessary money to match Federal-Aid Secondary funds as they become available. This latter would require State funds of about $4.2 million per year. It should be noted that matching Federal-Aid Secondary funds, as they become available, will fall far short of accelerating improvement of this total system (12,100 miles recommended) into a 13-year catch-up program. Also, this plan would do nothing to improve the situation in other local roads or in the city street problem except for urban extensions of the primary routes.

Figures for Plan I are shown on Table 4-1 and the same plan is shown graphically on Chart 4-5. This plan is a 19-year plan in that all bonds, $137,587,000, would be issued in 11 years and be retired in the ensuing 8 years. Interest costs would be $38,986,000 at 3% over the period. Interest costs of this 19-year program in relation to direct highway costs that would be covered under the plan in the same period are shown below:

19-Year Credit Financing Costs

Program Costs (19 years)	Amount (000)	Per cent
Primary Highways	$ 862,202	78.8
Secondary Highways[1]	192,369	17.6
Total	$1,054,571	96.4
Amount Borrowed	(137,587)	....
Interest at 3%	$ 38,986	3.6
Total Program Cost and Interest	$1,093,557	100.0

[1] Federal-Aid funds and State matching funds for construction only.

The interest cost appears large but in relation to the total solution is only 3.6%. This program is similar in approach to the present policy in Montana where the primary system is the responsibility of the State and Federal-Aid Secondary

Table 4-1
Financial Plan I
PROVIDING 13-YEAR CATCH-UP FOR PRIMARY SYSTEM AND NECESSARY STATE FUNDS FOR MATCHING FEDERAL-AID SECONDARY FUNDS

Year	Total Program Cost	Interest on New Financing at 3%	Total Requirements	Current Revenue	Bonds[1] Issued	Bonds[1] Retired	Bonds[1] Outstanding	Surplus
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1957	$ 54,492	$ 51	$ 54,543	$ 52,856	$ 1,687	$	$ 1,687	$ ....
1958	55,675	140	55,815	52,820	2,995	....	4,682	....
1959	58,130	151	58,281	57,944	337	....	5,019	....
1960	60,585	561	61,146	47,477	13,669	....	18,688	....
1961	63,040	1,037	64,077	48,199	15,878	....	34,566	....
1962	65,495	1,582	67,077	48,913	18,164	....	52,730	....
1963	67,336	2,179	69,515	49,627	19,888	....	72,618	....
1964	67,336	2,771	70,107	50,349	19,758	....	92,376	....
1965	67,336	3,360	70,696	51,063	19,633	....	112,009	....
1966	67,336	3,945	71,281	51,777	19,504	....	131,513	....
1967	54,448	4,128	58,576	52,502	6,074	....	137,587	....
1968	42,788	4,128	46,916	53,217	....	6,301	131,286	....
1969	32,354	3,939	36,293	53,938	....	17,645	113,641	....
1970	15,474	3,409	18,883	39,167	....	20,284	93,357	....
1971	16,287	2,801	19,088	39,881	....	20,793	72,564	....
1972	17,100	2,177	19,277	40,603	....	21,326	51,238	....
1973	17,913	1,537	19,450	41,320	....	21,870	29,368	....
1974	18,726	881	19,607	42,020	....	22,413	6,955	....
1975	20,351	209	20,560	42,756	....	6,955	....	15,241
TOTAL	$862,202	$ 38,986	$901,188	$916,429	$137,587	$137,587	$	$ 15,241

[1] Bond issuance and retirement calculations are based on the assumptions that no bonds will be retired during the issuing period and that the bonds for each year are issued at the beginning of the year.

matching funds are also a State responsibility. It differs from present procedures in that it provides for full assignment of State responsibility for construction and maintenance of urban extensions of the primary system.

FINANCIAL PLAN II

A second plan presented would provide for a 13-year catch-up program for the primary system, urban and rural, and a similar catch-up period for the 12,000 miles of rural secondary. This would also provide for maintenance of the secondary system from State funds. It would be impossible to accomplish this plan without providing additional funds at the State level. Since all construction and maintenance on the extensive 12,000 miles of secondary roads would be removed as a county burden it is reasonable to suggest that this additional revenue could come from full assignment of registration fee money to the State.

Figures for Plan II are shown on Table 4-2 and the plan is shown graphically on Chart 4-6. This might be called a 22-year plan as bonds are issued in the total amount of $215,268,000 in the first 12 years and retired over the following 10 years. Interest payments for the entire period would be $74,117,000 figured at 3%.

Interest costs of this 22-year program in relation to direct highway costs that would be covered under the plan over the same period are shown below:

22-Year Credit Financing Costs

Program Costs (22 years)	Amount (000)	Per cent
Primary Highways	$ 933,034	69.0
Secondary Highways	344,640	25.5
Total	$1,277,674	94.5
Amount Borrowed	(215,268)	....
Interest at 3%	$ 74,117	5.5
Total Program Cost and Interest	$1,351,791	100.0

Interest payment is again a modest part of the total accomplishment even though a sizeable amount in dollars.

It should be noted that this plan does provide an accelerated program for the primary and secondary rural highways and the primary extensions in cities. The rural systems so improved carry 92% of all rural traffic and the urban extensions carry 39% of all city traffic. The plan takes care of this improvement partly at the expense of the counties through loss of registration revenues but the responsibilities removed from counties far exceed the loss of revenue.

FINANCIAL PLAN III

This is the broadest of all plans presented. It provides for an accelerated 13-year catch-up period for backlog needs on the primary system, both urban and rural, for matching all Federal-Aid Secondary funds as they become available, and for allocation of $6,477,000 per year for 20 years to counties and cities to provide a 20-year catch-up program at those levels. All this could be accompished in a 32-year period without change in current revenue sources, and assuming increases in user revenues through increased vehicle use and increase in county and city property taxes to the existing permissible maximums.

This 32-year plan of meeting all backlog needs in an accelerated period and providing all other necessary funds as required, is shown in Table 4-3 and graphically in Chart 4-7. It should be pointed out that Chart 4-7 does not show all revenue available for highways to State, counties, and cities. In fact, it shows only those revenues that are available to the State from current sources, as augmented by a proposed bond issue. It does not include Federal-Aid Secondary funds from Federal sources or any strictly local revenues such as property taxes, registration fees and other funds.

A question might be raised as to why revenues would be sent to counties in the period 1970 to 1976 when these units appear to have a surplus. Actually the annual amounts indicated for counties are on an average annual basis. County needs exist beyond all revenues in the early years and these could be handled only by delay until these surpluses appear in the years 1970-1976 or by some type of local credit financing in anticipation of these surpluses.

The cost of credit financing in relation to all of the other highway and street costs that would be covered in the total 32-year period are shown below. It should be noted that interest costs, although formidable, are only 4.3 percent of all the highway costs of the period.

32-Year Credit Financing Costs

(13-year catch-up, Primary and Secondary
20-year catch-up, other roads and streets)

Program Costs (32 years)	Amount (000)	Per cent
State-Primary	$1,296,655	50.4
County-Secondary and Local	981,690	38.1
City Arterial and Local	184,917	7.2
Total	2,463,262	95.7
Amount Borrowed	(226,368)	....
Interest at 3%	110,478	4.3
Total Program Cost and Interest	$2,573,740	100.0

It is believed that some emphasis should be given to Plan III since it provides for total road and street needs at all levels of government within a reasonable period of time. All of this could be accomplished without increase in present total highway user revenue rates even though adjustments among users might be indicated in later chapters.

In the program depicted in Chart 4-7, the revenues available for matching Federal-Aid Primary funds art not quite adequate in the first and third year of the catch-up period. In all other catch-up years, the matching funds are adequate and in several years a considerable amount of State funds would be available for construction beyond matching requirements. The shortage of funds for matching Federal-Aid money in the first and third years is not serious. This could be adjusted by allocating some Federal-Aid money to so-called 100 percent projects, during these years. These 100 per-

Table 4-2

FINANCIAL PLAN II

Providing 13-year catch-up for primary and secondary rural systems with secondary systems becoming complete responsibility and registration revenues allocated to State

Year	Total Program Cost	Interest on New Financing at 3%	Total Requirements	Current Revenue	Bonds[1] Issued	Bonds[1] Retired	Bonds[1] Outstanding	Surplus
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1957	$ 74,528	$ 65	$ 74,593	$ 72,431	$ 2,162	$	$ 2,162	$ ....
1958	75,711	377	76,088	65,698	10,390	....	12,552	....
1959	78,166	604	78,770	71,215	7,555	....	20,107	....
1960	80,621	1,227	81,848	61,041	20.807	....	40,914	....
1961	83,076	1,921	84,997	61,856	23,141	....	64,055	....
1962	85,531	2,689	88,220	62,663	25,557	....	89,612	....
1963	87,372	3,510	90,882	63,470	27,412	....	117,024	....
1964	87,372	4,334	91,706	64.284	27,422	....	144,446	....
1965	87,372	5,156	92,528	65,091	27,437	....	171,883	....
1966	87,372	5,980	93,352	65,898	27,454	....	199,337	....
1967	74,484	6,405	80,889	66,716	14,173	....	213.510	....
1968	62,824	6,458	69,282	67.524	1.758	....	215.268	....
1969	52,390	6,458	58,848	68,338	....	9,490	205.778	....
1970	24,273	6,173	30,446	53,660	....	23,214	182,564	....
1971	25,086	5,477	30,563	54,467	....	23,904	158,660	....
1972	25,899	4,759	30,658	55,281	....	24,623	134,037	....
1973	26,712	4,021	30,733	56,091	....	25,358	108,679	....
1974	27,525	3,260	30,785	56,884	....	26,099	82,580	....
1975	29,150	2,477	31,627	57,713	....	26,086	56,494	....
1976	29,963	1,694	31,657	58,521	....	26,864	29,630	....
1977	34,970	889	35,859	59,375	....	23.516	6,114	....
1978	37,277	183	37,460	60,250	....	6,114	....	16,676
	$1,277,674	$ 74,117	$1,351,791	$1,368,467	$ 215,268	$ 215.268	$	$ 16.676

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[1] Bond issuance and retirement calculations are based on the assumptions that no bonds will be retired during the issuing period and that the bonds for each year are issued at the beginning of the year.

Table 4-3

FINANCIAL PLAN III

Providing 13-Year Catch-up for Primary and Secondary Systems and 20-Year Catch-up for All Other Roads and Streets Through State Aid

Year	Program Costs	Allocation to Counties	Allocation to Cities	Total	Interest on New Financing at 3%	Total Requirements	Current Revenue	Bonds[1] Issued	Bonds[1] Retired	Bonds[1] Outstanding	Surplus
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1957	$ 54,492	$ 5,688	$ 789	$ 60,969	$ 251	$ 61,220	$ 52,856	$ 8,364	$	$ 8,364	$ ....
1958	55,675	5,688	789	62,152	549	62,701	52,820	9,881	....	18,245	....
1959	58,130	5,688	789	64,607	773	65,380	57,944	7,436	....	25,681	....
1960	60,585	5,688	789	67,062	1,405	68,467	47,477	20,990	....	46,671	....
1961	63,040	5,688	789	69,517	2,103	71,620	48,199	23,421	....	70,092	....
1962	65,495	5,688	789	71,972	2,881	74,853	48,913	25,940	....	96,032	....
1963	67,336	5,688	789	73,813	3,718	77,531	49,627	27,904	....	123,936	....
1964	67,336	5,688	789	73,813	4,559	78,372	50,349	28,023	....	151,959	....
1965	67,336	5,688	789	73,813	5,403	79,216	51,063	28,153	....	180,112	....
1966	67,336	5,688	789	73,813	6,252	80,065	51,777	28,288	....	208,400	....
1967	54,448	5,688	789	60,925	6,706	67,631	52,502	15,129	....	223,529	....
1968	42,788	5,688	789	49,265	6,791	56,056	53,217	2,839	....	226,368	....
1969	32,354	5,688	789	38,831	6,791	45,622	53,938	....	8,316	218,052	....
1970	15,474	5,688	789	21,951	6,542	28,493	39,167	....	10,674	207,378	....
1971	16,287	5,688	789	22,764	6,221	28,985	39,881	....	10,896	196,482	....
1972	17,100	5,688	789	23,577	5,894	29,471	40,603	....	11,132	185,350	....
1973	17,913	5,688	789	24,390	5,561	29,951	41,320	....	11,369	173,981	....
1974	18,726	5,688	789	25,203	5,219	30,422	42,020	....	11,598	162,383	....
1975	20,351	5,688	789	26,828	4,871	31,699	42,756	....	11,057	151,326	....
1976	21,164	5,688	789	27,641	4,540	32,181	43,471	....	11,290	140,036	....
1977	24,070	....	....	24,070	4,201	28,271	44,178	....	15,907	124,129	....
1978	25,598	....	....	25,598	3,724	29,322	44,906	....	15,584	108,545	....
1979	27,195	....	....	27,195	3,256	30,451	45,621	....	15,170	93,375	....
1980	29,053	....	....	29,053	2,801	31,854	46,327	....	14,473	78,902	....
1981	31,151	....	....	31,151	2,367	33,518	47,042	....	13,524	65,378	....
1982	33,379	....	....	33,379	1,961	35,340	47,749	....	12,409	52,969	....
1983	35,696	....	....	35,696	1,589	37,285	48,464	....	11,179	41,790	....
1984	37,924	....	....	37,924	1,254	39,178	49,170	....	9,992	31,798	....
1985	39,952	....	....	39,952	954	40,906	49,885	....	8,979	22,819	....
1986	41,759	....	....	41,759	685	42,444	50,592	....	8,148	14,671	....
1987	43,387	....	....	43,387	440	43,827	51,306	....	7,479	7,192	....
1988	44,125	....	....	44,125	216	44,341	52,013	....	7,192	....	480
TOTAL	$1,296,655	$ 113,760	$ 15,780	$1,426,195	$ 110,478	$1,536,673	$1,537,153	$ 226,368	$ 226,368		$ 480

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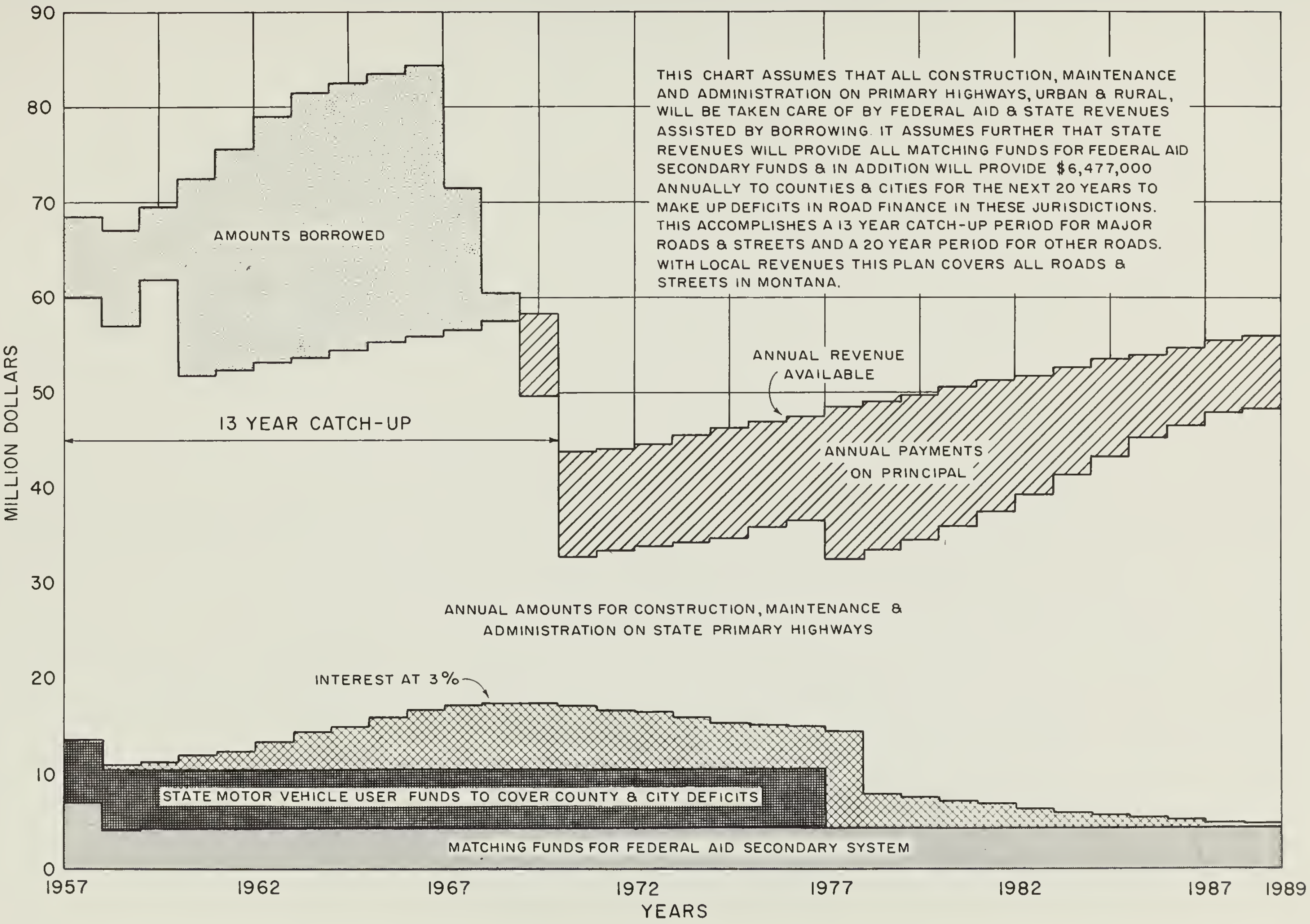
[1] Bond issuance and retirement calculations are based on the assumptions that no bonds will be retired during the issuing period and that the bonds for each year are issued at the beginning of the year.

CHART 4-7

PLAN 3

13 YEAR CATCH-UP PROGRAM FOR PRIMARY HIGHWAYS WITH BORROWINGS AND PROVIDING NECESSARY FUNDS TO BRING SECONDARY AND LOCAL SYSTEMS TO COMPLETION IN 20 YEARS



THIS CHART ASSUMES THAT ALL CONSTRUCTION, MAINTENANCE AND ADMINISTRATION ON PRIMARY HIGHWAYS, URBAN & RURAL, WILL BE TAKEN CARE OF BY FEDERAL AID & STATE REVENUES ASSISTED BY BORROWING. IT ASSUMES FURTHER THAT STATE REVENUES WILL PROVIDE ALL MATCHING FUNDS FOR FEDERAL AID SECONDARY FUNDS & IN ADDITION WILL PROVIDE $6,477,000 ANNUALLY TO COUNTIES & CITIES FOR THE NEXT 20 YEARS TO MAKE UP DEFICITS IN ROAD FINANCE IN THESE JURISDICTIONS. THIS ACCOMPLISHES A 13 YEAR CATCH-UP PERIOD FOR MAJOR ROADS & STREETS AND A 20 YEAR PERIOD FOR OTHER ROADS. WITH LOCAL REVENUES THIS PLAN COVERS ALL ROADS & STREETS IN MONTANA.

MILLION DOLLARS
90
80
70
60
50
40
30
20
10
0
1957
1962
1967
1972
1977
1982
1987
1989
YEARS
AMOUNTS BORROWED
13 YEAR CATCH-UP
ANNUAL REVENUE AVAILABLE
ANNUAL PAYMENTS ON PRINCIPAL
ANNUAL AMOUNTS FOR CONSTRUCTION, MAINTENANCE & ADMINISTRATION ON STATE PRIMARY HIGHWAYS
INTEREST AT 3%
STATE MOTOR VEHICLE USER FUNDS TO COVER COUNTY & CITY DEFICITS
MATCHING FUNDS FOR FEDERAL AID SECONDARY SYSTEM

cent projects are items such as grade crossings, and highways through Indian lands, which are eligible for construction entirely with Federal-Aid funds. The matter could also be adjusted by extending the Federal-Aid money to future years which can be easily accomplished through stretching the funds to the full 3-year availability period.

Effect of Borrowing on Federal-Aid

In 1950 the Federal Government recognized the national trend in State finance of borrowing against future revenues to provide current facilities. As a result of this recognition, the 1951 Federal-Aid Act included the following provision:

> "Any State, county, city or other political subdivision that shall issue bonds and use the proceeds of such bonds for the construction of toll-free facilities in order to accelerate the improvement of the National system of Interstate Highways, the Federal-Aid primary highway system or the Federal-Aid highway system in urban areas, may apply any portion of the funds herein, or hereafter, authorized for expenditure on said systems of highways and apportioned to such State under the provisions of section 1 of the Federal-Aid Highway Act of 1950 to aid in retirement of annual maturities of the principal indebtedness of such bonds to the extent that the proceeds of such bonds are actually expended in the construction of said systems of highways: **Provided,** That payment of Federal funds on the principal indebtedness of such bonds shall be made only on account of any such facility that is constructed in accordance with plans and specifications approved in advance of construction by the Commissioner of Public Roads: **Provided further,** That payment of Federal funds pursuant to this section shall not exceed the pro rata basis authorized by section 1 of the Federal-Aid Highway Act of 1950: **And provided further:** That payments to any State pursuant to this section shall be made exclusively from apportionments to such State from funds authorized by the Congress to be apportioned for expenditure on said systems of highways and this section shall not be construed as a commitment or obligation on the part of the United States to provide such funds. (Sept. 7, 1950, c. 912, 5, 64 Stat. 788.)"

This makes Federal-Aid funds available for bond redemption when the projects financed by bond funds have been constructed under regular Federal-Aid controls.

In view of the provisions of Federal law it is necessary that any state with limited local highway resources take full advantage of these provisions in launching a bond financed program.

Alternate to Credit Financing

As pointed out previously, if the motor vehicle public wants to take early steps toward "Moving Ahead On Montana Highways," the only alternate to some type of credit financing is increased taxation. It might be interesting to note just how much this increase would have to be in the terms of cents per gallon of fuel if Financial Plan III were to be pursued. This is not to imply that all such tax would have to come from fuel taxes, but this is a unit of measure perhaps most easily visualized by the average motor vehicle user.

It is unrealistic to assume that revenues could be forced upward in the heavy expenditure years as indicated in Table 4-4. An increase of 10.2 cents in 1962, for example, would be over and above the current 7-cent rate, or a total of 17.2 cents per gallon. There is understandable reluctance to accept this Spartan tax rate. This leads to the temptation of lowering the sights to a policy of "make-do" with something less than an adequate highway plant. Credit financing offers one solution. It has been presented here as one realistic answer to the total problem. Its use is a question of policy to be set by the legislative assembly and passed upon by vote of the people. Such procedures are time consuming, but this time can be used to advantage to put improved highway management and coordinating processes in order at State, county and city levels in preparation for the big undertaking ahead.

Table 4-4

Pay-As-You-Go Revenue Requirements to Accomplish Plan III

Year	Total Program Costs (000)	Estimated Annual Revenues[1] (000)	Annual Deficit (000)	Estimated Highway Fuel Consumption (thousand gallons)	Deficit in Cents Per Gallon
1957	$ 93,989	$82,922	$11,067	249,028	4.44
1958	95,177	76,559	18,618	257,763	7.22
1959	97,637	82,447	15,190	266,499	5.70
1960	100,089	72,644	27,445	275,234	9.97
1961	102,508	73,819	28,689	283,969	10.10
1962	104,944	74,998	29,946	292,705	10.23
1963	106,771	76,176	30,595	301,440	10.15
1964	106,777	77,352	29,425	310,175	9.49
1965	106,782	78,529	28,253	318,911	8.86
1966	106,788	79,707	27,081	327,646	8.27
1967	93,906	80,895	13,011	366,381	3.55
1968	82,251	82,064	187	345,117	0.05

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[1] See Appendix-Table 33.

OVER THE ROCKIES
WITHOUT A HIGHWAY

Without highways, the trucks would not roll. This is their place of business.

Courtesy: U. S. Bureau of Public Roads

Chapter 5

THE BENEFICIARIES OF HIGHWAYS and THEIR RESPONSIBILITY

Part 1

THE DIVISION OF BENEFITS BETWEEN USER and NON-USER

Introduction

It is generally held that highway users, property owners, and other segments of the general public all benefit from the availability of highway, road, and street facilities. And there is considerable justification, both from the theoretical and the practical point of view, for some division of highway responsibility between highway users and non-users. Many local type roads do not generate sufficient traffic to pay their cost at any reasonable rate of user taxation. Then too, certain legal restraints may make it impossible for local units of government to obtain user revenues. The property tax often remains the only practical revenue source for local governments.

Historically, Montana has received a considerable portion of its highway, street and road funds from non-user sources. From 1936 to 1954, the State, county and city units combined received 23 percent of the total revenue from the property tax. During the same period, 48 percent of the revenue came from users, 21 percent from Federal-Aid, and 8 percent from miscellaneous sources.

The State highway system has been financed almost entirely from user revenues and Federal-Aid. During 1936-55, 60 percent of the money for the state system came from user taxes, 33 percent came from Federal-Aid and 7 percent from miscellaneous sources. The miscellaneous category is composed largely of borrowing. And since the bonds are retired with subsequent user revenues, roughly one-third of the State highway revenue has come from the highway user.

At the county level in Montana, about 61 percent of the revenue has come from the property tax, 32 percent from user sources,[1] about two percent from Federal-Aid, and 5 percent from miscellaneous sources.

City governments in Montana raise about 81 percent of their street and road revenue from the property tax. User revenues account for about 4 percent, and the remainder comes from miscellaneous and unclassified sources.[2]

General Theory of Highway Benefits

It is generally held that there are three identifiable groups of highway development beneficiaries: highway (motor vehicle) users, property owners, and the general public. To these a fourth group, loosely termed the "automotive industry," might be added. It is obvious that firms engaged in the manufacture, sale and service of automotive equipment benefit directly from highway development. The demand for automotive equipment is tied more or less directly to the availability of highway facilities.

Highway Users

Highway users benefit from highway development either through reduced travel costs or increased revenue or more likely a combination of both. For commercial users the benefits are fairly straight forward. Improved highways subtract from costs and/or add to revenue. These increments result in increased profits. And the profit increment represents the benefit to the commercial user. Needless to say, these profit increments may be a function of savings in time, distance, or basic cost, or combinations thereof.

From a theoretical point of view, highway benefits to commercial users could best be measured through the effect of highway improvement upon the profit stream flowing to such users. Benefits to non-commercial users are a bit more difficult, both from the conceptual and the practical point of view. Their benefits accrue through savings in travel cost and/or the expanded range of travel made available by highway improvement. Since there is no empirical counterpart of commercial revenue for non-commercial users, measurement becomes impractical.

Property Owners (Land Occupants)

It is generally held that property owners constitute a specific beneficiary group with respect to highway development. Land occupants are presumed to enjoy certain access benefits. Access benefits are of course widely distributed, and it is difficult to assign benefits to specific individuals or parcels. Access benefits cannot be logically limited to abutting or adjacent property. Access is "two directional." Property owners enjoy benefits by virtue of access to external points and by virtue of the access available to others from external points. On the other hand, outsiders enjoy benefits by virtue of having access to the property and the land occupant. The former which we may term "internal access benefits," would presumably be capitalized into property values and paid for, in an opportunity cost sense, through interest and tax charges. The other type, "external access benefits," enjoyed by commercial firms are perhaps also capitalized externally.[1] Those external access benefits enjoyed by individuals on a social basis would not be capitalized.

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[1] The motor vehicle registration fee remains in the county where collected.

[2] The main sources of user revenue are parking meter receipts and the motor vehicle registration receipts which go to Butte, Anaconda, and Walkerville.

What we have termed "internal access benefits" above, are benefits of a short-run windfall nature that accrue to those who happen to own the property at the time particular developments become effective. Such benefits presumably affect the income producing and aesthetic qualities of the property and are subsequently capitalized into property values. After such capitalization, under a competitive economic structure, capital charges and property and income tax charges would rise and access benefits as far as the individual (economic unit) is concerned would be "spent." This suggests that many of the internal access benefits from prior development may already be incorporated into the tax system. The value of the facility to property owners would be equal to the increment of capitalized value added. This also suggests that the only practical way of capturing such benefits for highway financing may be through property and income taxes. It would seem desirable to determine the proportion of the property tax value base that can be considered a function of highway development. Then a tax rate equal to the capitalization rate would yield highway revenue equal to the annual internal access benefits.

The General Public

There are at least two types of highway development benefits to the general public.

The first of these might be called "public vehicle user benefits." This category includes the user benefits which arise through the use of highways by public or quasi-public vehicles such as those used in fire and police protection, mail delivery, and public school student transportation. It has often been suggested that the extent of highway use by public vehicles be determined and an obligation equal to the private user cost assigned to the government unit concerned. Since traffic of public vehicles is of relatively minor magnitude, this procedure should suffice for taking care of benefits to the public through vehicle use.

The other general type of general public benefit might be termed "income generation benefits." It is generally agreed that highway development serves to promote economic activity within and among communities (local, state and national). It is obvious, of course, that highway developments which promote general economic activity result in direct benefits to highway users. And the separation of these benefits is no easy matter, particularly at the empirical level. Conceptually, the problem may be approached like this. Highway development results in certain direct benefits to highway users (and perhaps to property owners). These benefits are in the form of either reduced costs and/or increased revenue. If user costs are reduced, funds are released for expenditure on other types of economic activity. If the highway improvement results in increased revenue to the user firms, an expanded demand for other goods and services has occurred simultaneously. And these expanded user revenues are then available for stimulation of general economic activity within the community. The over-all benefits to the general public would be measured by the increment in the income stream flowing to the community (state, county, or city).

The Automotive Industry

The term "automotive industry" as here used is defined as consisting of those business firms which engage in the production of motor vehicles and those which engage in the production of materials used in the operation and maintenance of motor vehicles. By and large the industry so defined would consist of the producers of automobiles and parts, petroleum products, and tires, and the firms that service the industry.

It is obvious that the automotive industry benefits more or less directly from highway development. Highway development, among other things, provides an expanded base for automotive transportation. This expanded base provides for an expansion in the demand for automotive equipment and for automotive materials and supplies. Such expansion is presumed to improve the profit position of automotive firms and to provide a base for the growth of the industry.

The work done by Montana State College in conjunction with the Fact Finding Committee consists of three phases: (1) A theoretical study of the general nature of highway benefits, much along the lines presented above; (2) A study of the effects of secondary highway improvement upon rural property values in the areas served by the secondary highways, together with some analysis of the effects on trading centers which serve the areas; (3) An earnings-credit analysis of the allocation of highway costs between motor vehicle users and non-users.

Benefits from the Development of Secondary Highways

The time and funds available made it impossible to conduct an extensive study of the effects of highway development upon property values in the State of Montana. In light of these limitations it was decided that pilot studies be made in areas where improvement had been recent and significant. Two such pilot areas were selected.

The principal sample area is served by the Bozeman-Norris cut-off route designated as Federal-Aid Secondary Route 289. This route extends from its junction with US 191 approximately seven miles west of Bozeman to Norris—a total length of approximately 30 miles. Approximately 17 miles of the road is in Gallatin County and the balance (13 miles) is in Madison County. Prior to grading and surfacing the road over the 1953-55 construction periods the road had been of roughly two types. The section lying in Gallatin County had been graded and graveled in about 1931-33. The section in Madison County was much the same as when Madison River bridge was built in 1890—a natural sand and gravel that was occasionally maintained. Some of the natural gravel would run about 6 to 8 inches in diameter and was exposed nearly one-fourth in many places. With the exception of indifferent snow removal it was largely an all season road; i.e., mud and spring breakup infrequently made it impassable. The surfacing can be considered to have raised this section from a primitive standard so that more of an increase in road service occurred along this section than did along the gravel section.

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[1] If one assumes a perfectly competitive economy these benefits would be passed largely to consumers (land occupants) and would thus be capitalized as internal access benefits.

This route (289) connects with Montana (1) at Norris which has been a surfaced road for approximately 20 years. Montana (1) in turn connects with US 10 at Sappington Junction. It was possible, then, to travel an oiled route from Norris to Bozeman prior to surfacing route 289; but it was 62 miles long as compared to 37 over 13 miles of primitive, 17 miles of gravel, and 7 miles of oil on the cut-off (now 289). For those who preferred to travel oil routes a new decision as to where to shop or market could be made at Sappington Junction where it was 51 miles to Butte and 45 to Bozeman. The decision would depend upon what items or services were being sought. Home supplies could be bought in either city, as could autos and trucks. Both had livestock auctions for marketing purposes. Bozeman is much more populated with farm machinery and supply houses; also grain marketing facilities are available.

In addition to Butte and Bozeman the residents along Montana (1) could shop at Norris for groceries, wholesale oil and gasoline supplies, and some repair services—at Ennis 17 miles south of Norris for most food supplies but little clothing or no banking, medical, or legal service. A third possibility was Harrison north of Norris 10 miles where groceries and limited hardware, machinery, and auto service and sales were available. Grain elevators are available there. To the residents along this Montana (1) then a much shorter (25 miles) oiled route from Norris to Bozeman was offered, with the surfacing of route 289, to a city where relatively complete marketing and shopping services were offered. Savings and values to farmers and ranchers beyond the end of the 289 cut-off did apparently occur.

Interspersed in the improvement of the 289 cut-off was the age-old question of how much trade might be drawn from the small towns of one county to the larger ones of another. A question which can only be partially answered.

The second and smaller sample area is served by the Bozeman-Bridger Canyon-Wilsall cut-off (a proposed extension of US 191) Federal-Aid System 293. The road through the sample area was built from dirt to gravel in a series of comparatively short sections beginning in 1936 when 1.76 miles were built. Additional sections of 1.61, 1.59, 2.47, and 3.32 miles were built in 1939, 1940, 1942 and 1948. The final section of 7.07 miles was also completed in 1948. It is now proposed that during the 1957 construction season the first 6-8 miles of this road be surfaced. No expected shift in trade is expected as Bozeman seems the most likely shopping and marketing center.

Survey Methods

An attempt was made to get information for analysis through estimates of farmers and businessmen. A preliminary letter was sent to the farmers and ranchers along the Bozeman-Norris cut-off route for whom addresses were available. These farmers were subsequently interviewed personally. The survey questionnaire was designed to get information relating to size of farm, type of production, distance from shopping and marketing center, estimated effect of road improvement on land value, and estimates of cost savings resulting from road improvement.

General comments on advantages and disadvantages were asked for and recorded when given. Farmers were interviewed along either side of the cut-off road until it became apparent that alternate routes were used for access to the particular farm. The sample was considered to be 100 percent. A more selective sample was used along Montana (1) between Norris and Harrison or Ennis in that ranchers who lived long distances off the road up side roads serving small valleys were not interviewed. A total of 68 farmers, ranchers, and acreage owners or renters were contacted in the sample area. In the area along the Bozeman-Bridger road, an attempt was made to determine the increase in land value when the road was graveled over the value when only a dirt road was present; and further to get estimates of the expected increase in land value from the proposed hard-surfacing of the road. Due perhaps to the intermittent times and short stretches of road that were graveled, little specific information was obtained. Too, many of the places further out had changed ownership since the road was graveled. Personal interviews were made with all farmers or ranchers who controlled more than twenty acres; otherwise a 100 percent sample, a total of 37 farms, was also drawn in this area.

The concrete results obtained in this study are in the nature of estimates and opinions by the farmers in the area. Farmers along the Bozeman-Norris road, for example, were asked to estimate the effect of the road improvement on the sales value of their farms. At best these estimates would be only a rough approximation of the actual conditions. But there seemed to be no practical alternative to this method. Sales of farms in this area, as in most rural areas in Montana, have been scant, and recourse to actual sales records was impossible.

Results and Interpretation of Sample Data

In both sample areas a wide variety of sizes and types of farming and ranching were found. In the Bozeman-Norris cut-off area, farms ranged from a minimum of 49 acres to a maximum of 35,000 acres. The mean size was 2,401 acres, but the modal size was between 251 and 500 acres. Production was generally of a diversified nature. Grain, hay, and cattle were the predominate products. Of a number of questions asked these farm owners, two were of particular importance. The first was concerned with the amount of reduced access cost and the second was the estimate of increase in land value. Only 9 percent of those interviewed felt that there was no savings in access cost. About 13 percent gave no answer, and the balance, 78 percent, though that savings in access were being made since the road was surfaced. A large variation in the estimates of saving were given from a low of 25 percent to a high of 500 percent. Average savings of 46.7 percent was estimated. No attempt was made to correlate greater distance from town to the greater estimates of saving. Neither did any of those interviewed feel that the records they kept were sufficiently detailed to substantiate their estimate.

Eight of the 68 persons interviewed gave dollar estimates of savings. These estimates had a range of from $50 to $300 per year, with a mean of $153. The present value of this mean, over a 20 year period is $1,908.19 at 5 percent, irrespective of distance from town. To save this $153 per year on travelling a surfaced road compared to a road in poor repair would require about 3,700 miles of travel, not an unreasonable figure. Additional savings on trucks would further reduce this required mileage.

Forty-two of the 68 persons interviewed estimated that their property had increased in value as a result of the road being hard surfaced. The average percentage estimate was 12.81 percent. The highest estimates came from some of those located about 30 miles from Bozeman along the more primitive section of the road.

From secondary sources of information, it was estimated that the average farm-ranch in the area has a market value of roughly $100,000. This would mean that the average farm or ranch would have increased about $12,800 as a result of the road improvement. On an aggregate basis, this would result in a capital gain of about $870,000 to the farmers in the area. The $12,800 figure compares to an estimated capital gain of about $3,000 per farm, or an aggregate of $204,000, when the capitalized value of the savings in access cost are taken.

This apparent discrepancy may have many causes. The value estimates may contain significant errors. The market for land in the area is not well established, and farmers were put in the position of making estimates assuming "other things remain equal." The calculations of average savings in access cost were based upon a small number of cases, and there may be considerable error in these estimates. It is also likely that many benefits to the home and family would not be reflected in reduced access cost. The improved highway no doubt makes a wider range of social and economic activity available to the family, and thereby adds to its utility stream. It appears that these gains, along with savings in time, would not be reflected in cost savings.

The size and type of farms along the Bozeman-Bridger were similar to those found in the Bozeman-Norris area. The data for estimating the value of a gravel access road over a dirt access road was not obtainable in this area as was originally hoped. Intermittent and short lengths of graveling and changes in ownership were largely responsible. The estimates obtained did serve as a cross check on the primary data. The farmers in this area estimated that land values would increase an average of 15.8 percent if the road were hard surfaced. This estimate compares favorably with the 12.81 percent estimated by those in the area where the road had recently been surfaced.

The Earnings-Credit Study

For purposes of the incremental cost analysis being done by the Fact Finding Committee staff, it was necessary to make specific allocations of the anticipated program cost for each system between users and non-users. The earnings-credit method is a convenient and amenable method of making such allocations.

The earnings-credit solution is a modification of the relative-use solution. Both are based upon the thought that highway users should not be assigned the entire cost of providing highways, roads, and streets, since benefits accrue to other interests. The earnings-credit solution attempts to compensate for the difficulty logically occurring from allocating highway or street costs by dividing traffic into access, neighborhood, and through traffic components, and from these components allocating responsibility to the property owners, the community, and the motor vehicle users on the basis of this classification. Critics are prone to point out that all traffic so divided is motor vehicle traffic and road user taxes are generated by all three.

The earnings-credit solution attempts to find what might be called an easy solution, which is based on summary data produced by engineering-needs studies and the regular annual data produced by the planning surveys. The earnings-credit solution attempts to make an allowance for the road-user tax earnings of such systems through a study of the number of vehicle miles in each classification of systems in both urban and rural developments. The earnings-credit solution further tries to avoid subsidization of rural roads by urban earnings or of earnings on a given classification subsidizing those of another. While this subsidization may not have a sound basis in theory, it seems in principle at least that the primary roads would be of little value without a feeder system. Too, urban areas still depend upon rural areas, by and large, for their basic food and raw materials.

Three general principles underlie the earnings-credit solution: (1) each system of roads and streets shall be credited with its motor-vehicle-tax earnings on the basis of vehicle-miles traveled on the system; (2) the first principle shall be modified to take account of the lower level of costs per vehicle-mile on urban systems as a whole; and (3) the non-motor-vehicle component of tax responsibility shall be determined separately for the rural and urban systems.

TABLE 5-1

SCHEDULE 1 - A

MONTANA REVISED EARNINGS - CREDIT ANALYSIS, MODIFIED COMPROMISE SOLUTION
20-Year Catchup Program

System	Average Annual Program Cost	Federal Aid	Net Program Costs	Motor Vehicle User Responsibility Rate Per Mile	Program Cost Per Mile Local System	Calculated Motor Vehicle Responsibility	Calculated Non-Motor Vehicle User Responsibility	Program Total Calculated Revenue Excess	Program Total Calculated Revenue Deficit	Revised Non-Motor Vehicle User Responsibility Calculations	Remaining Excess or Deficit
	(000)	(000)	(000)	(Mills)		(000)	(000)	(000)	(000)	(000) (.77660)	(000)
Rural:											
Interstate	$16,419	$12,503	$ 3,916								
Primary	25,406	10,152	15,254								
Sub-Total	$41,825	$22,655	$19,170	8.71236	$ 407.137	$19,170	$ 2,415	$ 2,415		$ 1,876	- $ 1,876
Secondary	$16,097	$ 5,916	$10,181	8.71236	$ 407.137	$ 4,241	$ 4,919		$ 1,021	$ 3,820	+ $ 2,120
Local	13,366	463	12,903	8.71236	407.137	3,127	12,903	3,127		10,020	- 244
Total Rural	$71,288	$29,034	$42,254	8.71236	$ 407.137	$26,538	$20,237	$ 4,521		$15,716	$ 0
										(.740800)	
Urban:											
Interstate	$ 598	$ 486	$ 112								
Primary	1,682	537	1,145								
Sub-Total	$ 2,280	$ 1,023	$ 1,257	5.1690	$ 3,019.410	$ 1,257	$ 507	$ 507		$ 376	- $ 376
Arterials	$ 1,557		$ 1,557	5.1690	$ 3,019.410	$ 689	$ 631		$ 237	$ 467	+ $ 401
Local	3,889		3,889	5.1690	3,019.410	1,033	3,889	$ 1,033		2,881	- 25
Total - Urban	$ 7,726	$ 1,023	$ 6,703	5.1690	$ 3,019.410	$ 2,979	$ 5,027	$ 1,303		$ 3,724	$ 0
Total Rural & Urban	$79,014	$30,057	$48,957			$29,517	$25,264	$ 5,823		$19,440	$ 0

ADJUSTMENT OF EARNINGS - CREDIT ANALYSIS FOR AVAILABILITY OF REVENUES

System	Excess Revenue Required From Motor Vehicle User	Total Revenue Required From Motor Vehicle User	Total Revenue Required From Non-Motor Vehicle User	Non-User Revenues Available	Additional Revenue Available From Motor Vehicle User	Total Revenue Available From Motor Vehicle User	Adjusted Total Revenue Required From Non-Motor Vehicle User
	(000)	(000)	(000)	(000)	(000) (5.933694%)	(000)	(000) (87.817919%)
Rural:							
Interstate							
Primary							
Sub-Total	$ 1,876	$21,046	$ 0	$ 0	$ 1,249	$22,295	$ 0
Secondary	$ 0	$ 4,241	$ 3,820	$ 1,022	$ 252	$ 4,493	$ 3,355
Local	0	3,127	10,020	9.335	185	3,312	8,799
Total - Rural	$ 1,876	$28,414	$13,840	$10,357	$ 1,686	$30,100 *	$12,154
					(57.804632%)		(146.240601%)
Urban:							
Interstate							
Primary							
Sub-Total	$ 0	$ 1,257	$ 0	$ 0	- $ 727	$ 530	$ 0
Arterials	$ 0	$ 689	$ 868	$ 725	- $ 398	$ 291	$ 1,269
Local	0	1,033	2,856	3,932	- 597	436	4,177
Total - Urban	$ 0	$ 2,979	$ 3,724	$ 4,657	- $ 1,722	$ 1,257 *	$ 5,446
Total Rural & Urban	$ 1,876	$31,393	$17,564	$15,014	- $ 36	$31,357	$17,600

Program deficit = 12,154 - 10,357 = $1,797 (x 10^3)
For 20-year program = $35,940,000

Program deficit = 5,446 - 4,657 = $789 (x 10^3)
For 20-year program = $15,780,000

Net Program deficit = 17,600 - 15,014 = $2,586 (x 10^3)
For 20-year program = $51,720,000

* User Responsibility applied to Incremental Analysis

Assumptions and Qualifications for this Analysis

While various methods of approach have been used in the earnings-credit solutions of various states, some modification was felt necessary to meet the changing situation in the face of the 1956 Federal Highway Act. In general it is considered best to deduct estimated Federal-Aid receipts in arriving at net state costs to be distributed. It is possible also that calculations may indicate a local tax support too large to be met from property taxation permissible in a particular county. Some matter of judgment and weighing tax potentials may have to enter into such a picture.

Local property taxes are presently limited by law to 10 mills for county roads and city streets. Nearly all of the counties and cities levy some or all of the statutory limit.

The population-mileage ratio in Montana is also a limiting factor in that a few people must, by and large, support a long set of highway systems. It has always been a difficult task to secure the necessary funds to match the available Federal-Aid and keep up with maintenance and administration costs. Little or no State aid has gone to cities and counties and these units of government have had to rely on the property tax and registration fees for road funds.

The road system classification is similar to those used in the Oregon and Michigan solutions. These classifications were made largely independent of the road surface type in contrast to the Louisiana Solution which used surface types as a basis for analysis. Where more than one surface type (in some cases four types are used) occurs in a given system, the costs are averaged, without weighing, to arrive at the program cost.

Basically, the earnings-credit method makes use of two opposing hypotheses: (1) That all costs on the Primary System should be assigned to the highway user. (2) That all costs on low traffic roads and streets should be assigned to the property owner. Using these assumptions and maintaining the principle that each road system should be credited with its motor vehicle earnings results in a surplus of responsibility on the Primary System, and a shortage or deficit of responsibility for rural secondaries and urban arterials. The earnings-credit solution provides a mechanical method for compromising the results of the assumptions, so that the sum of the responsibilities exactly equals the total program cost.

The Solution for Montana

The earnings-credit solution for Montana results in certain complications. With the present restrictions on property tax levies for road purposes, the rural secondaries could not be financed according to the regular earnings-credit results. On the other hand, the rural Primary and Interstate systems generate revenues in excess of program costs. It is certain that a reduction in present motor-vehicle revenues, despite excess earnings on some systems, would not allow the construction and maintenance of the new highways which are indispensable to the continuing economic welfare of Montana's citizenry. Consequently, the results of the earnings-credit solution were modified by permitting a surplus of user revenue on the Primary and Interstate Systems to be used on the deficit of the Secondary System. Further adjustments were made when it became apparent that more users' revenue is available to overcome remaining deficits.

The details of the manipulation are set forth in Table 5-1. The upper half of the table shows the results of a modified earnings-credit analysis considered most applicable to this State. The lower half of the table shows the adjustments for the availability of present revenues. The results may be summarized as follows:

System	Total Revenue Available from Motor Vehicle Users		Total Revenue Required from Non-Motor-Vehicle Users	
	(000)	%	(000)	%
Rural:				
Primary	$ 22,295	100.00	$	....
Secondary	4,493	57.25	3,355	42.75
Local	3,312	27.35	8,799	72.65
Total Rural	$ 30,100	71.24	$ 12,154	28.76
Urban:				
Primary	$ 530	100.00	$	....
Arterial	291	18.66	1,269	81.34
Local	436	9.45	4,177	90.55
Total Urban	$ 1,257	18.75	$ 5,446	81.25
Total Rural and Urban	$ 31,357	64.05	$ 17,600	35.95

Part 2A

THE CHARACTERISTICS OF MOTOR VEHICLE USE AND TAXATION IN MONTANA WITH A TON MILE ALLOCATION

The Gross Ton-Mile Theory of Costs Allocation has had the support of many tax analysts in recent years as a credible method of determining motor-vehicle tax responsibility. It is one of the most commonly used yardsticks applied to the problem. It has the approval of a number of leading economists in the highway field, and the wholehearted support of some economists who consider it to be a superior philosophy in its own right.

The underlying philosophy is that each user of the highways should pay for the benefits he receives from them. It is asserted that the product of weight times distance is a measure of these benefits; of the value of service rendered by the highway facility. Although there is no way of proving that the product is a direct measure of such value, it is obvious that the transportation of weight does provide monetary remuneration to a large segment of the motor-vehicle population—notably all trucks and busses. Whether or not the passenger car may be legitimately fitted with this common cloak, this common unit of measurement, is a moot point. If direct monetary remuneration is the determinant, then the ton-mile philosophy would not seem to be applicable across the board.

However, this method is probably the least complicated of all methods of determining supportable motor-vehicle tax responsibility. The data required for the calculations is generally available, or easy to procure. It may be derived from the usual vehicle registration data; traffic classification counts, and loadometer studies; and it involves only total highway expenditures.

It was decided early in the Montana study to make a ton-mile allocation for a twofold purpose: first, to use the results as a measuring stick against the much more complicated incremental analysis; second, to determine, by means of the assembled data, what tax contributions vehicles of different sizes and weights are making in Montana on a vehicle-mile as well as a ton-mile basis. This latter purpose allows comparison with other states such as Colorado, that have obviously applied ton-mile theory to calculate their tax schedules. The totals also make possible a reconciliation of the traffic data which has been used for the incremental and fiscal analyses with revenues actually collected. In this respect it is noteworthy that the calculated revenues for the year 1955 differ from actual revenues collected during that year by 3.5 percent which indicates that the traffic data developed for these studies is substantially correct. The small error, itself, is easily accounted for. The largest single item not included in the vehicle by vehicle calculation is the "sales tax" on new automobiles. These fees amounted to about $537,000 in 1955. Since the fee is paid only once in the automobile's lifetime, it hardly belongs in an annual per vehicle computation. The fee is largely in the same class as personal property taxes which naturally have not been included in the computation. Also there is always the possibility that some taxpayers may have neglected to claim their full entitlement to refunds of the gasoline tax. Working in the other direction, of course would be the fact that 7-cent and 9-cent fuel tax rates have been assumed for the full year. Actually the rate was only 6-cents for the first three months of the year. Even though these are low fuel usage months, the difference could have been as much as $500,000. The revenue calculated from the assembled registration and traffic data was $21,144,488; the revenue actually collected during 1955 was $21,921,000.

The registration, gross vehicle weight, and traffic data were broken out in fine detail, encompassing semi-annual registrations and traffic, and the present divisions of the tax structure which give special privileges to different vehicle groups by means of less than 100 percent fees The resulting information is invaluable. It provides a means of comparison of the privileged groups with non-privileged groups. It shows exactly what taxes are being paid by every type and weight of vehicle. In addition, it shows up the different operating characteristics of different vehicles.

In order to make these fine distinctions, data has been drawn from several sources. The records of the Gross Vehicle Weight Division of the Highway Department which include proration data were analyzed; the Motor-Vehicle Use Study of the Highway Department's Planning Survey was utilized; loadometer surveys for several years were employed to determine weight operation characteristics; and a tabulation of Oregon's weightmaster operations, kindly provided by the Oregon State Highway Department, together with the loadometer surveys, enabled the selection of typical combinations. (The trucking companies usually make their combinations interchangeable throughout the western states which have similar size and weight restrictions.)

One of the prime sources of all data utilized in this analysis was a study of commercial truck operations conducted, and financed, by the Montana Motor Transport Association at the request of the Fact Finding Committee. This study was divided into two parts. One entailed the compilation by com-

TABLE 5 - 2
CHARACTERISTICS OF MOTOR VEHICLE OPERATION AND TAXATION IN MONTANA
(SHOWING VEHICLE MILE AND TON MILE TAX CONTRIBUTIONS)

VEHICLE TYPE	NUMBER REGISTERED	AVERAGE FOR 1955			TOTAL VEHICLE MILES OPR. 1955 (000)	TOTAL GROSS TON MILES OPR. 1955	NUMBER GALS. FUEL CONSUMED 1955	MOTOR FUEL TAX AT 7¢ PER GAL. ($)	BASIC REGIS. & G.V.W. FEE ($)	TOTAL HIGH-WAY USER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TON MILE CONTRIBUTION		
		VEHICLE MILES	MILES PER GAL.	GROSS OPR. WEIGHT (Tons)							MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)	MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)
PASSENGER CARS	232,501	8,239	14.80	2.00	1,915,615	3,831,230,000	129,433,446	9,060,341.22	2,325,010.00	11,385,351.22	.004730	.001214	.005944	.0023649	.0006069	.0029718
GAS POWERED TRUCKS																
Full Fee																
Less Than 6,000	24,595	4,310	10.80	2.25	106,015	238,533,750	9,816,203	687,134.21	393,520.00	1,080,654.21	.006481	.003711	.010192	.0028806	.0016497	.0045303
8,000	2,460	23,507	9.35	3.00	57,827	173,481,000	6,184,705	432,929.35	54,120.00	487,049.35	.007486	.000935	.008421	.0024955	.0003120	.0028075
10,000	1,547	25,384	8.33	3.75	39,269	147,258,750	4,714,165	329,991.55	37,128.00	367,119.55	.008403	.000945	.009348	.0022409	.0002521	.0024930
12,000	1,017	16,987	7.59	4.50	17,267	77,701,500	2,274,967	159,247.69	26,442.00	185,689.69	.009222	.001531	.010753	.0020495	.0003403	.0023898
14,000	1,164	9,798	7.02	5.25	11,405	59,876,250	1,624,643	113,725.01	32,592.00	146,317.01	.009971	.002857	.012828	.0018993	.0005443	.0024436
16,000	1,531	7,801	6.54	6.00	11,943	71,658,000	1,826,146	127,830.22	48,992.00	176,822.22	.010703	.004102	.014805	.0017839	.0006837	.0024676
18,000	934	12,024	6.12	6.75	11,230	75,802,500	1,834,967	128,447.69	37,360.00	165,807.69	.011437	.003226	.014763	.0016945	.0004929	.0021874
20,000	1,140	16,286	5.79	7.50	18,566	139,245,000	3,206,563	224,459.41	57,000.00	281,459.41	.012089	.003070	.015159	.0016120	.0004094	.0020214
22,000	1,105	16,114	5.50	8.25	17,806	146,899,500	3,237,454	226,621.78	66,300.00	292,921.78	.012727	.003723	.016450	.0015427	.0004513	.0019940
24,000	886	6,818	5.25	9.00	6,041	54,369,000	1,150,666	80,546.62	75,310.00	155,856.62	.013333	.012466	.025799	.0014815	.0013852	.0028667
26,000	394	8,911	5.02	9.75	3,511	34,232,250	699,402	48,958.14	41,370.00	90,328.14	.013944	.011782	.025726	.0014302	.0012085	.0026387
28,000	213	14,981	4.82	10.50	3,191	33,505,500	662,033	46,342.31	26,625.00	72,967.31	.014522	.008343	.022865	.0013831	.0007946	.0021777
30,000	68	17,015	4.64	11.25	1,157	13,016,250	249,353	17,454.71	10,200.00	27,654.71	.015086	.008815	.023901	.0013410	.0007836	.0021246
32,000	40	16,825	4.48	12.00	673	8,076,000	150,223	10,515.61	7,200.00	17,715.61	.015624	.010698	.026322	.0013021	.0008915	.0021936
34,000	66	14,136	4.32	12.75	933	11,895,750	215,972	15,118.04	13,860.00	28,978.04	.016203	.014855	.031058	.0012709	.0011651	.0024360
36,000	75	9,733	4.19	13.50	730	9,855,000	174,224	12,195.68	18,000.00	30,195.68	.016706	.024657	.041363	.0012375	.0018265	.0030640
38,000	39	10,154	4.07	14.25	396	5,643,000	97,297	6,810.79	10,530.00	17,340.79	.017198	.026590	.043788	.0012069	.0018660	.0030729
40,000	10	19,900	3.96	15.00	199	2,985,000	50,252	3,517.64	3,000.00	6,517.64	.017676	.015075	.032751	.0011784	.0010050	.0021834
42,000	175	21,520	3.87	15.75	3,766	59,314,500	973,126	68,118.82	57,750.00	125,868.82	.018087	.015334	.033421	.0011484	.0009736	.0021220
TOTAL	37,459				311,925	1,363,348,500	39,142,361	$ 2,739,965.27	$ 1,017,299.00	$ 3,757,264.27						
1/2 Full Fee																
6,000	2,652	2,126	10.80	2.25	5,638	12,685,500	522,037	36,542.59	34,476.00	71,018.59	.006481	.006114	.012595	.0028807	.0027177	.0055984
8,000	365	7,937	9.35	3.00	2,897	8,691,000	309,839	21,688.73	5,840.00	27,528.73	.007486	.002015	.009501	.0024955	.0006720	.0031675
10,000	199	11,925	8.33	3.75	2,373	8,898,750	284,873	19,941.11	3,383.00	23,324.11	.008403	.001425	.009828	.0022409	.0003802	.0026211
12,000	126	7,992	7.59	4.50	1,007	4,531,500	132,674	9,287.18	2,268.00	11,555.18	.009222	.002252	.011474	.0020495	.0005005	.0025500
14,000	102	4,686	7.02	5.25	478	2,509,500	68,091	4,766.37	1,938.00	6,704.37	.009971	.004054	.014025	.0018993	.0007723	.0026716
16,000	170	3,694	6.54	6.00	628	3,768,000	96,024	6,721.68	3,570.00	10,291.68	.010703	.005684	.016387	.0017839	.0009475	.0027314
18,000	518	4,894	6.12	6.75	2,535	17,111,250	414,215	28,995.05	12,950.00	41,945.05	.011437	.005108	.016545	.0016945	.0007568	.0024513
20,000	313	7,144	5.79	7.50	2,236	16,770,000	386,183	27,032.81	9,390.00	36,422.81	.012089	.004199	.016288	.0016120	.0005599	.0021719
22,000	264	7,189	5.50	8.25	1,898	15,658,500	345,090	24,156.30	9,240.00	33,396.30	.012727	.004868	.017595	.0015427	.0005901	.0021328
24,000	193	3,073	5.25	9.00	593	5,337,000	112,952	7,906.64	9,167.50	17,074.14	.013333	.015459	.028792	.0014815	.0017177	.0031992
26,000	92	4,076	5.02	9.75	375	3,656,250	74,701	5,229.07	5,290.00	10,519.07	.013944	.014106	.028050	.0014302	.0014468	.0028770
28,000	58	6,638	4.82	10.50	385	4,042,500	79,875	5,591.25	3,915.00	9,506.25	.014522	.010168	.024690	.0013831	.0009685	.0023516
30,000	8	7,500	4.64	11.25	60	675,000	12,931	905.17	640.00	1,545.17	.015086	.010666	.025752	.0013410	.0009481	.0022891
32,000	6	6,500	4.48	12.00	39	468,000	8,705	609.35	570.00	1,179.35	.015624	.014615	.030239	.0013020	.0012179	.0025199
34,000	7	6,429	4.32	12.75	45	573,750	10,416	729.12	770.00	1,499.12	.016202	.017111	.033313	.0012708	.0013420	.0026128
36,000	10	5,000	4.19	13.50	50	675,000	11,933	835.31	1,250.00	2,085.31	.016706	.025000	.041706	.0012375	.0018519	.0030894
38,000	8	5,500	4.07	14.25	44	627,000	10,810	756.70	1,120.00	1,876.70	.017197	.025454	.042651	.0012069	.0017863	.0029932
40,000	4	7,000	3.96	15.00	28	420,000	7,070	494.90	620.00	1,114.90	.017675	.022142	.039817	.0011783	.0014762	.0026545
42,000	32	111,169	3.87	15.75	367	5,780,250	94,832	6,638.24	5,440.00	12,078.24	.018087	.014822	.032909	.0011484	.0009411	.0020895
TOTAL	5,127				21,676	112,878,750	2,983,251	$ 208,827.57	$ 111,837.50	$ 320,665.07						
75% Fee																
6,000	33	3,000	10.80	2.25	99	222,750	9,166	641.62	478.50	1,120.12	.006481	.004833	.011314	.0028804	.0021481	.0050285
8,000	25	17,400	9.35	3.00	435	1,305,000	46,524	3,256.68	475.00	3,731.68	.007486	.001091	.008577	.0024955	.0003640	.0028595
10,000	11	17,000	8.33	3.75	187	701,250	22,448	1,571.36	225.50	1,796.86	.008403	.001205	.009607	.0022408	.0003216	.0025624
12,000	15	11,667	7.59	4.50	175	787,500	23,056	1,613.92	330.00	1,943.92	.009222	.001885	.011107	.0020494	.0004190	.0024684
14,000	34	6,676	7.02	5.25	227	1,191,750	32,336	2,263.52	799.00	3,062.52	.009971	.003519	.013490	.0018993	.0006704	.0025697
16,000	38	5,658	6.54	6.00	215	1,290,000	32,874	2,301.18	1,007.00	3,308.18	.010703	.004683	.015386	.0017839	.0007806	.0025645
18,000	171	9,199	6.12	6.75	1,573	10,617,750	257,026	17,991.82	5,557.50	23,549.32	.011437	.003533	.014970	.0016944	.0005234	.0022178
20,000	52	12,019	5.79	7.50	625	4,687,500	107,944	7,556.08	2,080.00	9,636.08	.012089	.003328	.015417	.0016120	.0004437	.0020557
22,000	70	11,557	5.50	8.25	809	6,674,250	147,090	10,296.30	3,325.00	13,621.30	.012727	.004110	.016837	.0015427	.0004982	.0020409
24,000	72	4,875	5.25	9.00	351	3,159,000	66,857	4,679.99	4,770.00	9,449.99	.013333	.013589	.026922	.0014815	.0015100	.0029915
26,000	40	6,600	5.02	9.75	264	2,574,000	52,589	3,681.23	3,250.00	6,931.23	.013944	.012310	.026254	.0014302	.0012626	.0026928
28,000	64	9,969	4.82	10.50	638	6,699,000	132,365	9,265.55	6,160.00	15,425.55	.014522	.009655	.024177	.0013831	.0009195	.0023026
30,000	28	10,429	4.64	11.25	292	3,285,000	62,931	4,405.17	3,220.00	7,625.17	.015086	.011027	.026113	.0013410	.0009802	.0023212
32,000	47	9,809	4.48	12.00	461	5,532,000	102,901	7,203.07	6,462.50	13,665.57	.015624	.014018	.029642	.0013021	.0011682	.0024703
34,000	20	8,900	4.32	12.75	178	2,269,500	41,203	2,884.21	3,200.00	6,084.21	.016203	.017977	.034180	.0012709	.0014100	.0026809
36,000	21	6,857	4.19	13.50	144	1,944,000	34,367	2,405.69	3,832.50	6,238.19	.016706	.026614	.043320	.0012375	.0019715	.0032090
38,000	20	5,900	4.07	14.25	118	1,681,500	28,992	2,029.44	4,100.00	6,129.44	.017198	.034745	.051943	.0012069	.0024383	.0036452
40,000	4	12,000	3.96	15.00	48	720,000	12,121	848.47	910.00	1,758.47	.017676	.018958	.036634	.0011784	.0012639	.0024423
42,000	77	13,753	3.87	15.75	1,059	16,679,250	273,643	19,155.01	19,250.00	38,405.01	.018087	.018177	.036264	.0011484	.0011541	.0023025
TOTAL	842				7,898	72,021,000	1,486,433	$ 104,050.31	$ 69,432.50	$ 173,482.81						
1/2 - 75% Fee																
6,000	8	1,375	10.80	2.25	11	24,750	1,018	71.26	98.00	169.26	.006478	.008909	.015387	.0028792	.0039596	.0068388
8,000	3	8,000	9.35	3.00	24	72,000	2,566	179.62	43.50	223.12	.007484	.001812	.009296	.0024947	.0006042	.0030989
10,000	5	6,800	8.33	3.75	34	127,500	4,081	285.67	76.25	361.92	.008402	.002242	.010644	.0022405	.0005980	.0028385
12,000	5	5,000	7.59	4.50	25	112,500	3,293	230.51	80.00	310.51	.009220	.003200	.012420	.0020490	.0007111	.0027601
14,000	11	2,818	7.02	5.25	31	162,750	4,415	309.05	184.25	493.30	.009969	.005943	.015912	.0018989	.0011321	.0030310
16,000	6	2,667	6.54	6.00	16	96,000	2,446	171.22	109.50	280.72	.010701	.006843	.017544	.0017835	.0011406	.0029241
18,000	57	3,877	6.12	6.75	221	1,491,750	36,111	2,527.77	1,211.25	3,739.02	.011437	.005480	.016917	.0016945	.0008120	.0025065
20,000	9	5,778	5.79	7.50	52	390,000	8,981	628.67	225.00	853.67	.012089	.004326	.016415	.0016120	.0005769	.0021889
22,000	16	5,188	5.50	8.25	83	684,750	15,090	1,056.30	460.00	1,516.30	.012726	.005542	.018268	.0015426	.0006718	.0022144
24,000	17	2,176	5.25	9.00	37	333,000	7,047	493.29	648.21	1,141.50	.013332	.017519	.030851	.0014814	.0019466	.0034280
26,000	8	2,750	5.02	9.75	22	214,500	4,382	306.74	365.04	671.78	.013942	.016592	.030534	.0014300	.0017018	.0031318
28,000	16	4,625	4.82	10.50	74	777,000	15,352	1,074.64	850.08	1,924.72	.014522	.011487	.026009	.0013831	.0010941	.0024772
30,000	7	4,714	4.64	11.25	33	371,250	7,112	497.84	437.50	935.34	.015086	.013257	.028343	.0013410	.0011785	.0025195
32,000	11	4,091	4.48	12.00	45	540,000	10,044	703.08	811.25	1,514.33	.015624	.018027	.033651	.0013020	.0015023	.0028043
34,000	7	3,429	4.32	12.75	24	306,000	5,555	388.85	595.00	983.85	.016202	.024791	.040993	.0012708	.0019444	.0032152
36,000	5	2,200	4.19	13.50	11	148,500	2,625	183.75	481.25	665.00	.016704	.043750	.060454	.0012374	.0032407	.0044781
38,000	5	3,200	4.07	14.25	16	228,000	3,931	275.17	537.50	812.67	.017198	.033593	.050791	.0012069	.0023575	.0035644
40,000	2	5,500	3.96	15.00	11	165,000	2,777	194.39	237.50	431.89	.017671	.021590	.039261	.0011781	.0014394	.0026175
42,000	16	5,813	3.87	15.75	93	1,464,750	24,031	1,682.17	2,080.00	3,762.17	.018087	.022365	.040452	.0011484	.0014200	.0025684
TOTAL	214				863	7,710,000	160,857	$ 11,259.99	$ 9,531.08	$ 20,791.07						

TABLE 5 - 2

CHARACTERISTICS OF MOTOR VEHICLE OPERATION AND TAXATION IN MONTANA
(SHOWING VEHICLE MILE AND TON MILE TAX CONTRIBUTIONS)
(continued)

VEHICLE TYPE	NUMBER REGISTERED	AVERAGE FOR 1955			TOTAL VEHICLE MILES OPR. 1955 (000)	TOTAL GROSS TON MILES OPR. 1955	NUMBER GALS. FUEL CONSUMED 1955	MOTOR FUEL TAX AT 7¢ PER GAL. ($)	BASIC REGIS. & G.V.W. FEE ($)	TOTAL HIGH-WAY USER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TON MILE CONTRIBUTION		
		VEHICLE MILES	MILES PER GAL.	GROSS OPR. WEIGHT (Tons)							MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)	MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)
GAS POWERED TRUCKS																
60% Fee																
6,000	19	2,474	10.80	2.25	47	105,750	4,351	304.57	266.00	570.57	.006480	.005659	.012139	.0028801	.0025154	.0053955
8,000	9	14,667	9.35	3.00	132	396,000	14,117	988.19	154.80	1,142.99	.007486	.001172	.008658	.0024954	.0003909	.0028863
10,000	9	15,899	8.33	3.75	143	536,250	17,166	1,201.62	165.60	1,367.22	.008402	.001158	.009560	.0022408	.0003088	.0025496
12,000	9	10,111	7.59	4.50	91	409,500	11,989	839.23	176.40	1,015.63	.009222	.001938	.011160	.0020494	.0004308	.0024802
14,000	14	6,071	7.02	5.25	85	446,250	12,108	847.56	291.20	1,138.76	.009971	.003425	.013396	.0018993	.0006525	.0025518
16,000	29	4,690	6.54	6.00	136	816,000	20,795	1,455.65	672.80	2,128.45	.010703	.004947	.015650	.0017838	.0008245	.0026083
18,000	98	8,041	6.12	6.75	788	5,319.000	128,758	9,013.06	2,744.00	11,757.06	.011437	.003482	.014919	.0016945	.0005159	.0022104
20,000	51	9,922	5.79	7.50	506	3,795,000	87,392	6,117.44	1,734.00	7,851.44	.012089	.003426	.015515	.0016120	.0004569	.0020689
22,000	37	10,216	5.50	8.25	378	3,118,500	68,727	4,810.89	1,480.00	6,290.89	.012727	.003915	.016642	.0015427	.0004746	.0020173
24,000	45	4,044	5.25	9.00	182	1,638,000	34,666	2,426.62	2,475.00	4,901.62	.013333	.013598	.026931	.0014815	.0015110	.0029925
26,000	43	6,070	5.02	9.75	261	2,544,750	51,992	3,639.44	2,881.00	6,520.44	.013944	.011038	.024982	.0014302	.0011321	.0025623
28,000	26	8,577	4.82	10.50	223	2,341,500	46,265	3,238.55	2,054.00	5,292.55	.014522	.009210	.023732	.0013831	.0008772	.0022603
30,000	11	7,727	4.64	11.25	85	956,250	18,318	1,282.26	1,034.00	2,316.26	.015085	.012164	.027249	.0013409	.0010813	.0024222
32,000	4	9,250	4.48	12.00	37	444,000	8,258	578.06	448.00	1,026.06	.015623	.012108	.027731	.0013019	.0010090	.0023109
34,000	4	5,250	4.32	12.75	21	267,750	4,861	340.27	520.00	860.27	.016203	.024761	.040964	.0012708	.0019421	.0032129
36,000	2	6,500	4.19	13.50	13	175,500	3,102	217.14	296.00	513.14	.016703	.022769	.039472	.0012373	.0016866	.0029239
38,000	3	4,000	4.07	14.25	12	171,000	2,948	206.36	498.00	704.36	.017196	.041500	.058696	.0012068	.0029123	.0041191
42,000	25	9,800	3.87	15.75	245	3,858,750	63,307	4,431.49	5,050.00	9,481.49	.018087	.020612	.038699	.0011484	.0013087	.0024571
TOTAL	438				3,385	27,339,750	599,120	$ 41,938.40	$ 22,940.80	$ 64,879.20						
1/2 - 60% Fee																
6,000	6	1,167	10.80	2.25	7	15,750	648	45.36	72.00	117.36	.006480	.010285	.016765	.0028800	.0045714	.0074514
12,000	1	5,000	7.59	4.50	5	22,500	658	46.06	14.80	60.86	.009212	.002960	.012172	.0020471	.0006578	.0027049
16,000	2	2,500	6.54	6.00	5	30,000	764	53.48	33.20	86.68	.010696	.006640	.017336	.0017827	.0011067	.0028894
18,000	8	3,875	6.12	6.75	31	209,250	5,065	354.55	152.00	506.55	.011437	.004903	.016340	.0016944	.0007264	.0024208
20,000	9	4,556	5.79	7.50	41	307,500	7,081	495.67	198.00	693.67	.012089	.004829	.016918	.0016119	.0006439	.0022558
24,000	5	2,200	5.25	9.00	11	99,000	2,095	146.65	162.50	309.15	.013331	.014772	.028103	.0014813	.0016414	.0031227
28,000	4	5,500	4.82	10.50	22	231,000	4,564	319.48	178.00	497.48	.014521	.008090	.022611	.0013830	.0007706	.0021536
34,000	3	2,667	4.32	12.75	8	102,000	1,851	129.57	210.00	339.57	.016196	.026250	.042446	.0012703	.0020588	.0033291
42,000	2	17,000	3.87	15.75	34	535,500	8,785	614.95	212.00	826.95	.018086	.006235	.024321	.0011484	.0003959	.0015443
TOTAL	40				164	1,552,500	31,511	$ 2,205.77	$ 1,232.50	$ 3,438.27						
20% Fee																
6,000	15,144	4,697	10.86	2.25	71,127	160,035,750	6,585,833	461,008.31	212,016.00	673,024.31	.006481	.002980	.009461	.0028807	.0013248	.0042055
8,000	7,882	3,552	9.35	3.00	27,997	83,991,000	2,994,331	209,603.17	110,348.00	319,951.17	.007486	.003941	.011427	.0024955	.0013138	.0038093
10,000	4,917	2,536	8.33	3.75	12,468	46,755,000	1,496,758	104,773.06	68,838.00	173,611.06	.008403	.005521	.013924	.0022409	.0014723	.0037132
12,000	2,256	1,947	7.59	4.50	4,392	19,764,000	578,656	40,505.92	31,584.00	72,089.92	.009222	.007191	.016413	.0020495	.0015981	.0036476
14,000	2,194	2,586	7.02	5.25	5,673	29,783,250	806,119	56,568.33	30,716.00	87,284.33	.009971	.005414	.015385	.0018993	.0010313	.0029306
16,000	2,550	3,271	6.54	6.00	8,340	50,040,000	1,275,229	89,266.03	36,720.00	125,986.03	.010703	.004402	.015105	.0017839	.0007338	.0025177
18,000	3,577	4,241	6.12	6.75	15,171	102,404,250	2,478,921	173,524.47	57,232.00	230,756.47	.011437	.003772	.015209	.0016945	.0005589	.0022534
20,000	4,651	3,332	5.79	7.50	15,499	116,242,500	2,676,856	187,379.92	83,718.00	271,097.92	.012089	.005401	.017490	.0016120	.0007202	.0023322
22,000	4,217	4,337	5.50	8.25	18,291	150,900,750	3,325,636	232,794.52	84,340.00	317,134.52	.012727	.004611	.017338	.0015427	.0005589	.0021016
24,000	2,365	5,909	5.25	9.00	13,975	125,775,000	2,661,904	186,333.28	59,125.00	245,458.28	.013333	.004230	.017563	.0014815	.0004701	.0019516
26,000	698	6,779	5.02	9.75	4,732	46,137,000	942,629	65,984.03	20,242.00	86,226.03	.013944	.004277	.018221	.0014302	.0004387	.0018689
28,000	293	7,778	4.82	10.50	2,279	23,929,500	472,821	33,097.47	9,669.00	42,766.47	.014522	.004242	.018764	.0013831	.0004041	.0017872
30,000	87	8,851	4.64	11.25	770	8,662,500	165,948	11,616.36	3,306.00	14,922.36	.015086	.004293	.019379	.0013410	.0003816	.0017226
32.000	20	10,050	4.48	12.00	201	2,412,000	44,866	3,140.62	880.00	4,020.62	.015624	.004378	.020002	.0013021	.0003648	.0016669
TOTAL	50,651				200,915	966,832,500	26,508,507	$1,855,595.49	$ 808,734.00	$2,664,329.49						
1/2- 20% Fee																
6,000	1,150	2,263	10.80	2.25	2,603	5,856,750	241,018	16,871.26	13,800.00	30,671.26	.006481	.005301	.011782	.0028807	.0023563	.0052370
8,000	453	1,724	9.35	3.00	781	2,343,000	83,529	5,847.03	5,436.00	11,283.03	.007486	.006960	.014446	.0024955	.0023201	.0048156
10,000	229	1,236	8.33	3.75	283	1,061,250	33,973	2,378.11	2,748.00	5,126.11	.008403	.009710	.018113	.0022409	.0025894	.0048303
12,000	139	942	7.59	4.50	131	589,500	17,259	1,208.13	1,668.00	2,876.13	.009222	.012732	.021954	.0020494	.0028295	.0048789
14,000	132	1,250	7.02	5.25	165	866,250	23,504	1,645.28	1,584.00	3,229.28	.009971	.009600	.019571	.0018993	.0018286	.0037279
16,000	142	1,592	6.54	6.00	226	1,356,000	34,556	2,418.92	1,732.40	4,151.32	.010703	.007665	.018368	.0017839	.0012776	.0030615
18,000	219	2,059	6.12	6.75	451	3,044,250	73,692	5,158.44	2,847.00	8,005.44	.011437	.006312	.017749	.0016945	.0009352	.0026297
20,000	271	1,620	5.79	7.50	439	3,292,500	75,820	5,307.40	3,794.00	9,101.40	.012089	.008642	.020731	.0016120	.0011523	.0027643
22,000	293	2,099	5.50	8.25	615	5,073,750	111,818	7,827.26	4,395.00	12,222.26	.012727	.007146	.019873	.0015427	.0008662	.0024089
24,000	324	2,765	5.25	9.00	896	8,064,000	170,666	11,946.62	5,670.00	17,616.62	.013333	.006328	.019661	.0014815	.0007031	.0021846
26,000	161	3,043	5.02	9.75	490	4,777,500	97,609	6,832.63	3,139.50	9,972.13	.013944	.006407	.020351	.0014302	.0006571	.0020873
28,000	45	3,600	4.82	10.50	162	1,701,000	33,609	2,352,63	967.50	3,320.13	.014522	.005972	.020494	.0013831	.0005688	.0019519
30,000	11	4,182	4.64	11.25	46	517,500	9,913	693.91	264.00	957.91	.015085	.005739	.020824	.0013409	.0005101	.0018510
32,000	3	4,667	4.48	12.00	14	168,000	3,125	218.75	81.00	299.75	.015625	.005785	.021410	.0013021	.0004821	.0017842
TOTAL	3,572				7,302	38,711,250	1,010,091	$ 70,706.37	$ 48,126.40	$ 118,832.77						

TABLE 5 - 2

CHARACTERISTICS OF MOTOR VEHICLE OPERATION AND TAXATION IN MONTANA
(SHOWING VEHICLE MILE AND TON MILE TAX CONTRIBUTIONS)
(continued)

VEHICLE TYPE	NUMBER REGISTERED	AVERAGE FOR 1955			TOTAL VEHICLE MILES OPR. 1955 (000)	TOTAL GROSS TON MILES OPR. 1955	NUMBER GALS. FUEL CONSUMED 1955	MOTOR FUEL TAX AT 9¢ PER GAL. ($)	BASIC REGIS. & G.V.W. FEE ($)	TOTAL HIGHWAY USER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TON MILE CONTRIBUTION		
		VEHICLE MILES	MILES PER GAL.	GROSS OPR. WEIGHT (TONS)							MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)	MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)
DIESEL POWERED TRUCKS																
Full Fee																
18,000	28	21,536	7.20	6.75	603	4,070,250	83,750	7,537.50	1,120.00	6,657.50	.012500	.001857	.014357	.0018519	.0002752	.0021271
20,000	6	27,667	6.92	7.50	166	1,245,000	23,988	2,158.92	300.00	2,458.92	.013005	.001807	.014812	.0017341	.0002410	.0019751
22,000	8	27,125	6.68	8.25	217	1,790,250	32,485	2,923.65	480.00	3,403.65	.013473	.002211	.015684	.0016331	.0002681	.0019012
24,000	50	11,520	6.47	9.00	576	5,184,000	89,026	8,012.34	4,250.00	12,262.34	.013910	.007378	.021288	.0015456	.0008198	.0023654
26,000	70	15,829	6.25	9.75	1,108	10,803,000	177,280	15,955.20	7,350.00	23,305.20	.014400	.006633	.021033	.0014769	.0006804	.0021573
28,000	45	26,267	6.08	10.50	1,182	12,411,000	194,407	17,496.63	5,625.00	23,121.63	.014802	.004758	.019560	.0014098	.0004532	.0018630
30,000	22	30,727	5.91	11.25	676	7,605,000	114,382	10,294.38	3,300.00	13,594.38	.015228	.004881	.020109	.0013536	.0004339	.0017875
32,000	14	29,571	5.78	12.00	414	4,968,000	71,626	6,446.34	2,520.00	8,966.34	.015570	.006086	.021656	.0012976	.0005072	.0018048
34,000	7	21,286	5.62	12.75	149	1,899,750	26,512	2,386.08	1,470.00	3,856.08	.016013	.009865	.025878	.0012560	.0007738	.0020296
36,000	43	17,419	5.49	13.50	749	10,111,500	136,429	12,278.61	10,320.00	22,598.61	.016393	.013778	.030171	.0012143	.0010206	.0022349
38,000	26	17,885	5.37	14.25	465	6,626,250	86,592	7,793.28	7,020.00	14,613.28	.016759	.015096	.031855	.0011761	.0010594	.0022355
40,000	67	19,955	5.25	15.00	1,337	20,055,000	254,666	22,919.94	20,100.00	43,019.94	.017142	.015033	.032175	.0011429	.0010022	.0021451
42,000	203	37,887	5.13	15.75	7,691	121,133,250	1,499,220	134,929.80	66,990.00	201,919.80	.017543	.008710	.026253	.0011139	.0005530	.0016669
TOTAL	589				15,333	207,902,250	2,709,363	$ 251,132.67	$ 130,845.00	$ 381,977.67						
1/2 Full Fee																
18,000	4	8,500	7.20	6.75	34	229,500	4,722	424.98	100.00	524.98	.012499	.002941	.015440	.0018518	.0004357	.0022875
20,000	2	12,000	6.92	7.50	24	180,000	3,468	312.12	60.00	372.12	.013005	.002500	.015505	.0017340	.0003333	.0020673
22,000	2	12,000	6.68	8.25	24	198,000	3,592	323.28	70.00	393.28	.013470	.002916	.016386	.0016327	.0003535	.0019862
24,000	11	5,182	6.47	9.00	57	513,000	8,809	792.81	522.50	1,315.31	.013908	.009166	.023074	.0015454	.0010185	.0025639
26,000	15	7,200	6.25	9.75	108	1,053,000	17,280	1,555.20	862.50	2,417.70	.014400	.007986	.022386	.0014769	.0008191	.0022960
28,000	12	11,583	6.06	10.50	139	1,459,500	22,861	2,057.49	810.00	2,867.49	.014802	.005827	.020629	.0014097	.0005550	.0019647
30,000	3	14,000	5.91	11.25	42	472,500	7,106	639.54	240.00	879.54	.015227	.005714	.020941	.0013535	.0005079	.0018614
32,000	3	12,333	5.76	12.00	37	444,000	6,401	576.09	285.00	861.09	.015570	.007702	.023272	.0012975	.0006419	.0019394
34,000	1	10,000	5.62	12.75	10	127,500	1,779	160.11	110.00	270.11	.016011	.011000	.027011	.0012558	.0008627	.0021185
36,000	5	8,600	5.49	13.50	43	580,500	7,832	704.88	625.00	1,329.88	.016392	.014543	.030926	.0012143	.0010767	.0022910
38,000	4	9,000	5.37	14.25	36	513,000	6,703	603.27	560.00	1,163.27	.016757	.015555	.032312	.0011760	.0010916	.0022676
40,000	32	7,125	5.25	15.00	228	3,420,000	43,428	3,908.52	4,960.00	8,868.52	.017142	.021754	.038896	.0011428	.0014503	.0025931
42,000	38	15,605	5.13	15.75	593	9,339,750	115,594	10,403.46	6,460.00	16,863.46	.017543	.010693	.028436	.0011139	.0006917	.0018056
TOTAL	132				1,375	18,530,250	249,575	$ 22,461.75	$ 15,665.00	$ 38,126.75						
75% Fee																
18,000	1	17,000	7.20	6.75	17	114,750	2,361	212.49	32.50	244.99	.012499	.001911	.014410	.0018518	.0002832	.0021350
20,000	1	21,000	6.92	7.50	21	157,500	3,034	273.06	40.00	313.06	.013002	.001904	.014906	.0017337	.0002540	.0019877
24,000	4	8,250	6.47	9.00	33	297,000	5,100	459.00	265.00	724.00	.013909	.008030	.021939	.0015455	.0008923	.0024378
26,000	8	11,875	6.25	9.75	95	926,250	15,200	1,368.00	650.00	2,018.00	.014400	.006842	.021242	.0014769	.0007018	.0021787
28,000	14	17,500	6.08	10.50	245	2,572,500	40,296	3,626.64	1,347.50	4,974.14	.014802	.005500	.020302	.0014098	.0005238	.0019336
30,000	9	18,778	5.91	11.25	169	1,901,250	28,595	2,573.55	1,035.00	3,608.55	.015228	.006124	.021352	.0013536	.0005444	.0018980
32,000	14	16,857	5.78	12.00	236	2,832,000	40,830	3,674.70	1,925.00	5,599.70	.015570	.008156	.023726	.0012976	.0006797	.0019773
34,000	2	13,000	5.62	12.75	26	331,500	4,626	416.34	320.00	736.34	.016013	.012307	.028320	.0012559	.0009653	.0022212
36,000	11	12,000	5.49	13.50	132	1,782,000	24,043	2,163.87	2,007.50	4,171.37	.016392	.015208	.031600	.0012143	.0011265	.0023408
38,000	15	10,800	5.37	14.25	162	2,308,500	30,167	2,715.03	3,075.00	5,790.03	.016759	.018981	.035740	.0011761	.0013320	.0025081
40,000	30	11,967	5.25	15.00	359	5,385,000	68,380	6,154.20	6,825.00	12,979.20	.017142	.019011	.036153	.0011428	.0012674	.0024102
42,000	89	24,157	5.13	15.75	2,150	33,862,500	419,103	37,719.27	22,250.00	59,969.27	.017543	.010348	.027891	.0011139	.0006571	.0017710
TOTAL	198				3,645	52,470,750	661,735	$ 61,356.15	$ 39,772.50	$101,128.65						
1/2 - 75% Fee																
18,000	1	7,000	7.20	6.75	7	47,250	972	87.48	21.25	108.73	.012497	.003035	.015532	.0018514	.0004497	.0023011
24,000	1	4,000	6.47	9.00	4	36,000	618	55.62	38.13	93.75	.013905	.009532	.023437	.0015450	.0010592	.0026042
26,000	2	5,000	6.25	9.75	10	97,500	1,600	144.00	91.26	235.26	.014400	.009126	.023526	.0014769	.0009360	.0024129
28,000	3	7,667	6.08	10.50	23	241,500	3,782	340.38	159.39	499.77	.014799	.006930	.021729	.0014094	.0006600	.0020694
30,000	2	9,000	5.91	11.25	18	202,500	3,045	274.05	125.00	399.05	.015225	.006944	.022169	.0013533	.0006173	.0019706
32,000	4	7,000	5.78	12.00	28	336,000	4,844	435.96	295.00	730.96	.015570	.010535	.026105	.0012975	.0008780	.0021755
34,000	1	6,000	5.62	12.75	6	76,500	1,067	96.03	85.00	181.03	.016005	.014166	.030171	.0012553	.0011111	.0023664
36,000	4	4,750	5.49	13.50	19	256,500	3,460	311.40	385.00	696.40	.016389	.020263	.036652	.0012140	.0015010	.0027150
38,000	3	5,333	5.37	14.25	16	228,000	2,979	268.11	322.50	590.61	.016756	.020156	.036912	.0011759	.0014145	.0025904
40,000	13	5,385	5.25	15.00	70	1,050,000	13,333	1,199.97	1,543.75	2,743.72	.017142	.022053	.039195	.0011428	.0014702	.0026130
42,000	20	10,450	5.13	15.75	209	3,291,750	40,740	3,666.60	2,600.00	6,266.60	.017543	.012440	.029983	.0011139	.0007899	.0019038
TOTAL	54				410	5,863,500	76,440	$ 6,879.60	$ 5,666.28	$ 12,545.88						
60% Fee																
18,000	1	15,000	7.20	6.75	15	101,250	2,083	187.47	28.00	215.47	.012498	.001866	.014364	.0018516	.0002765	.0021281
24,000	3	7,000	4.47	9.00	21	189,000	4,697	422.73	165.00	587.73	.020130	.007857	.027987	.0022367	.0008730	.0031097
26,000	7	10,714	6.25	9.75	75	731,250	12,000	1,080.00	469.00	1,549.00	.014400	.006253	.020653	.0014769	.0006414	.0021183
28,000	5	14,800	6.08	10.50	74	777,000	12,171	1,095.39	395.00	1,490.39	.014802	.005337	.020139	.0014098	.0005084	.0019182
30,000	5	15,200	5.91	11.25	76	855,000	12,859	1,157.31	470.00	1,627.31	.015227	.006184	.021411	.0013536	.0005497	.0019033
32,000	1	16,000	5.78	12.00	16	192,000	2,768	249.12	112.00	361.12	.015570	.007000	.022570	.0012975	.0005833	.0018808
34,000	1	9,000	5.62	12.75	9	114,750	1,601	144.09	130.00	274.09	.016010	.014444	.030454	.0012557	.0011329	.0023886
36,000	1	11,000	5.49	13.50	11	148,500	2,003	180.27	148.00	328.27	.016388	.013454	.029842	.0012139	.0009966	.0022105
38,000	3	8,333	5.37	14.25	25	356,250	4,655	418.95	498.00	916.95	.016758	.019920	.036678	.0011760	.0013979	.0025739
42,000	34	18,588	5.13	15.75	632	9,954,000	123,196	11,087.64	6,868.00	17,955.64	.017543	.010867	.028410	.0011139	.0006900	.0018039
TOTAL	61				954	13,419,000	178,033	$ 16,022.97	$ 9,283.00	$ 25,305.97						

TABLE 5 - 2

CHARACTERISTICS OF MOTOR VEHICLE OPERATION AND TAXATION IN MONTANA
(SHOWING VEHICLE MILE AND TON MILE TAX CONTRIBUTIONS)
(continued)

VEHICLE TYPE	NUMBER REGISTERED	AVERAGE FOR 1955			TOTAL VEHICLE MILES OPR. 1955 (000)	TOTAL GROSS TON MILES OPR. 1955	NUMBER GALS. FUEL CONSUMED 1955	MOTOR FUEL TAX AT 7¢ PER GAL. ($)	BASIC REGIS. & G.V.W. FEE ($)	TOTAL HIGHWAY USER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TON MILE CONTRIBUTION		
		VEHICLE MILES	MILES PER GAL.	GROSS OPR. WEIGHT (TONS)							MOTOR FUEL TAX (dollare)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollare)	MOTOR FUEL TAX (dollare)	BASIC REGIS. (dollare)	TOTAL HIGHWAY USER TAX (dollare)
GAS POWERED TRACTOR TRUCKS																
Full Fee																
14,000	80	4,263	7.02	5.11	341	1,742,510	48,575	3,400.25	2,240.00	5,640.25	.009971	.006568	.016539	.0019514	.0012855	.0032369
16,000	31	18,774	6.54	5.84	582	3,398,880	88,990	6,229.30	992.00	7,221.30	.010703	.001704	.012407	.0018328	.0002919	.0021247
18,000	39	35,128	6.12	6.57	1,370	9,000,900	223,856	15,669.92	1,560.00	17,229.92	.011437	.001138	.012575	.0017409	.0001733	.0019142
20,000	53	52,623	5.79	7.30	2,789	20,359,700	481,692	33,718.44	2,650.00	36,368.44	.012089	.000950	.013039	.0016561	.0001302	.0017863
22,000	61	67,082	5.50	8.03	4,092	32,858,760	744,000	52,080.00	3,660.00	55,740.00	.012727	.000894	.013621	.0015850	.0001114	.0016964
24,000	43	83,070	5.25	8.76	3,572	31,290,720	680,380	47,626.60	3,655.00	51,281.60	.013333	.001023	.014356	.0015221	.0001168	.0016389
26,000	33	99,333	5.02	9.49	3,278	31,108,220	652,988	45,709.16	3,465.00	49,174.16	.013944	.001057	.015001	.0014694	.0001114	.0015808
28,000	11	102,909	4.82	10.22	1,132	11,569,040	234,854	16,439.78	1,375.00	17,814.78	.014522	.001214	.015736	.0014210	.0001189	.0015399
30,000	1	81,000	4.64	10.95	81	886,950	17,456	1,221.92	150.00	1,371.92	.015085	.001851	.016936	.0013777	.0001691	.0015468
32,000	2	92,000	4.48	11.68	184	2,149,120	41,071	2,874.97	360.00	3,234.97	.015624	.001956	.017580	.0013377	.0001675	.0015052
34,000	2	118.000	4.32	12.41	236	2,928,760	54,629	3,824.03	420.00	4,244.03	.016203	.001779	.017982	.0013057	.0001434	.0014491
36,000	8	105,750	4.19	13.14	846	11,116,440	201,909	14,133.63	1,920.00	16,053.63	.016706	.002269	.018975	.0012714	.0001727	.0014441
38,000	1	54,000	4.07	13.87	54	748,980	13,267	928.69	270.00	1,198.69	.017197	.005000	.022197	.0012400	.0003605	.0016005
TOTAL	365				18,557	159,158,980	3,483,667	$ 243,856.69	$22,717.00	$ 266,573.69						
1/2 Full Fee																
14,000	7	2,143	7.02	5.11	15	76,650	2,136	149.52	133.00	282.52	.009968	.008866	.018834	.0019507	.0017352	.0036859
16,000	3	8,667	6.54	5.84	26	151,840	3,975	278.25	63.00	341.25	.010701	.002423	.013124	.0018325	.0004149	.0022474
18,000	6	16,333	6.12	6.57	98	643,860	16,013	1,120.91	150.00	1,270.91	.011437	.001530	.012967	.0017409	.0002330	.0019739
20,000	15	23,467	5.79	7.30	352	2,569,600	60,794	4,255.58	450.00	4,705.58	.012089	.001278	.013367	.0016561	.0001751	.0018312
22,000	15	30,400	5.50	8.03	456	3,661,680	82,909	5,803.63	525.00	6,328.63	.012727	.001151	.013878	.0015850	.0001434	.0017284
24,000	9	36,889	5.25	8.76	332	2,908,320	63,238	4,426.66	427.50	4,854.16	.013333	.001287	.014620	.0015221	.0001470	.0016691
26,000	7	40,857	5.02	9.49	286	2,714,140	56,972	3,988.04	402.50	4,390.54	.013944	.001407	.015351	.0014694	.0001483	.0016177
28,000	3	45,333	4.82	10.22	136	1,389,920	28,215	1,975.05	202.50	2,177.55	.014522	.001488	.016010	.0014210	.0001457	.0015667
32,000	1	55,000	4.48	11.68	55	642,400	12,276	859.32	95.00	954.32	.015624	.001727	.017351	.0013377	.0001479	.0014856
36,000	1	39,000	4.19	13.14	39	512,460	9,307	651.49	125.00	776.49	.016704	.003205	.019909	.0012713	.0002439	.0015152
TOTAL	67				1,795	15,270,870	335,835	$ 23,508.45	$ 2,573.50	$ 26,081.95						
75% Fee																
14,000	2	3,000	7.02	5.11	6	30,660	854	59.78	47.00	106.78	.009963	.007833	.017796	.0019498	.0015329	.0034827
16,000	1	15,000	6.54	5.84	15	87,600	2,293	160.51	26.50	187.01	.010700	.001766	.012466	.0018323	.0003025	.0021348
18,000	2	23,000	6.12	6.57	46	302,220	7,516	526.12	65.00	591.12	.011437	.001413	.012850	.0017409	.0002151	.0019560
20,000	2	36,500	5.79	7.30	73	532,900	12,607	882.49	80.00	962.49	.012088	.001095	.013183	.0016560	.0001501	.0018061
22,000	4	49,500	5.50	8.03	198	1,589,940	36,000	2,520.00	190.00	2,710.00	.012727	.000959	.013686	.0015850	.0001195	.0017045
24,000	4	64,500	5.25	8.76	258	2,260,080	49,142	3,439.94	265.00	3,704.94	.013333	.001027	.014360	.0015220	.0001173	.0016393
26,000	4	71,750	5.02	9.49	287	2,723,630	57,171	4,001.97	325.00	4,326.97	.013944	.001132	.015076	.0014694	.0001193	.0015887
28,000	3	58,667	4.82	10.22	176	1,798,720	36,514	2,555.98	288.75	2,844.73	.014522	.001640	.016162	.0014210	.0001605	.0015815
32,000	2	41,500	4.48	11.68	83	969,440	18,526	1,296.82	275.00	1,571.82	.015624	.003313	.018937	.0013377	.0002837	.0016214
36,000	2	52,500	4.19	13.14	105	1,379,700	25,059	1,754.13	365.00	2,119.13	.016706	.003476	.020182	.0012714	.0002646	.0015360
38,000	1	60,000	4.07	13.87	60	832,200	14,742	1,031.94	205.00	1,236.94	.017199	.003416	.020615	.0012400	.0002463	.0014863
TOTAL	27				1,307	12,507,090	260,424	$ 18,229.68	$ 2,132.25	$ 20,361.93						
1/2 - 75% Fee																
14,000	1	1,000	7.02	5.11	1	5,110	142	9.94	16.75	26.69	.009940	.016750	.026690	.0019452	.0032779	.0052231
18,000	1	10,000	6.12	6.57	10	65,700	1,633	114.31	21.25	135.56	.011431	.002125	.013556	.0017399	.0003234	.0020633
20,000	1	15,000	5.79	7.30	15	109,500	2,590	181.30	25.00	206.30	.012086	.001666	.013752	.0016557	.0002283	.0018840
22,000	1	22,000	5.50	8.03	22	176,660	4,000	280.00	28.75	308.75	.012727	.001306	.014033	.0015850	.0001627	.0017477
24,000	1	28,000	5.25	8.76	28	245,280	5,333	373.31	38.13	411.44	.013332	.001361	.014693	.0015220	.0001555	.0016775
26,000	1	40,000	5.02	9.49	40	379,600	7,968	557.76	45.63	603.39	.013944	.001140	.015084	.0014693	.0001202	.0015895
28,000	1	29,000	4.82	10.22	29	296,380	6,016	421.12	53.13	474.25	.014521	.001832	.016353	.0014209	.0001793	.0016002
32,000	1	33,000	4.48	11.68	33	385,440	7,366	515.62	73.75	589.37	.015624	.002234	.017858	.0013377	.0001913	.0015290
36,000	2	44,500	4.19	13.14	89	1,169,460	21,241	1,486.87	192.50	1,679.37	.016706	.002162	.018868	.0012714	.0001646	.0014360
TOTAL	10				267	2,833,130	56,289	$ 3,940.23	$ 494.89	$ 4,435.12						
60% Fee																
14,000	1	3,000	7.02	5.11	3	15,330	427	29.89	20.80	50.69	.009963	.006933	.016896	.0019498	.0013568	.0033066
16,000	1	12,000	6.54	5.84	12	70,080	1,834	128.38	23.20	151.58	.010698	.001933	.012631	.0018319	.0003311	.0021630
18,000	1	22,000	6.12	6.57	22	144,540	3,594	251.58	28.00	279.58	.011435	.001272	.012707	.0017406	.0001937	.0019343
20,000	2	29,500	5.79	7.30	59	430,700	10,189	713.23	68.00	781.23	.012088	.001152	.013240	.0016560	.0001579	.0018139
22,000	2	44,000	5.50	8.03	88	706,640	16,000	1,120.00	80.00	1,200.00	.012727	.000909	.013636	.0015850	.0001132	.0016982
24,000	2	57,000	5.25	8.76	114	998,640	21,714	1,519.98	110,00	1,629.98	.013333	.000964	.014297	.0015220	.0001101	.0016321
26,000	3	39,667	5.02	9.49	119	1,129,310	23,705	1,659.35	201.00	1,860.35	.013944	.001689	.015633	.0014693	.0001780	.0016473
28,000	1	42,000	4.82	10.22	42	429,240	8,713	609.91	79.00	688.91	.014521	.001880	.016401	.0014209	.0001840	.0016049
30,000	1	104,000	4.64	10.95	104	1,138,800	22,413	1,568.91	94.00	1,662.91	.015085	.000903	.015988	.0013777	.0000825	.0014602
TOTAL	14				563	5,063,280	108,589	$ 7,601.23	$ 704.00	$ 8,305.23						
1/2 - 60% Fee																
20,000	1	6,000	5.79	7.30	6	43,800	1,036	72.52	22.00	94.52	.012086	.003666	.015752	.0016557	.0005023	.0021580
TOTAL	1				6	43,800	1,036	$ 72.52	$ 22.00	$ 94.52						

TABLE 5 - 2

CHARACTERISTICS OF MOTOR VEHICLE OPERATION AND TAXATION IN MONTANA
(SHOWING VEHICLE MILE AND TON MILE TAX CONTRIBUTIONS)
(continued)

VEHICLE TYPE		NUMBER REGISTERED	VEHICLE MILES	AVERAGE FOR 1955		TOTAL VEHICLE MILES OPR. 1955 (000)	TOTAL GROSS TON MILES OPR. 1955	NUMBER GALS. FUEL CONSUMED 1955	MOTOR FUEL TAX AT 9¢ PER GAL. $	BASIC REGIS. & G.V.W. FEE ($)	TOTAL HIGHWAY USER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TON MILE CONTRIBUTION		
				MILES PER GAL.	GROSS OPR. WEIGHT (Tons)							MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)	MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)
DIESEL POWERED TRACTOR TRUCKS																	
Full Fee																	
	20,000	1	53,000	6.92	7.30	53	386,900	7,658	689.22	50.00	739.22	.013004	.000943	.013947	.0017814	.0001292	.0019106
	22,000	1	67,000	6.68	8.03	67	538,010	10,029	902.61	60.00	962.61	.013471	.000895	.014366	.0016777	.0001115	.0017892
	24,000	4	83,000	6.47	8.76	332	2,908,320	51,313	4,618.17	340.00	4,958.17	.013910	.001024	.014934	.0015880	.0001169	.0017049
	26,000	10	99,300	6.25	9.49	993	9,423,570	158,880	14,299.20	1,050.00	15,349.20	.014400	.001057	.015457	.0015174	.0001114	.0016288
	28,000	33	102,909	6.08	10.22	3,396	34,707,120	558,552	50,269.68	4,125.00	54,394.68	.014802	.001214	.016016	.0014484	.0001189	.0015673
	30,000	2	80,500	5.91	10.95	161	1,762,950	27,241	2,451.69	300.00	2,751.69	.015227	.001863	.017090	.0013907	.0001702	.0015609
	32,000	1	92,000	5.78	11.68	92	1,074,560	15,916	1,432.44	180.00	1,612.44	.015570	.001956	.017526	.0013330	.0001675	.0015005
	34,000	2	118,500	5.62	12.41	237	2,941,170	42,170	3,795.30	420.00	4,215.30	.016013	.001772	.017785	.0012904	.0001428	.0014332
	36,000	73	105,808	5.49	13.14	7,724	101,493,360	1,406,921	126,622.89	17,520.00	144,142.89	.016393	.002268	.018661	.0012476	.0001726	.0014202
	38,000	10	53,700	5.37	13.87	537	7,448,190	100,000	9,000.00	2,700.00	11,700.00	.016759	.005027	.021786	.0012083	.0003625	.0015708
	40,000	18	105,722	5.25	14.60	1,903	27,783,800	362,476	32,622.84	5,400.00	38,022.84	.017142	.002837	.019979	.0011742	.0001944	.0013686
	42,000	78	69,667	5.13	15.33	5,434	83,303,220	1,059,259	95,333.31	25,740.00	121,073.31	.017543	.004736	.022279	.0011444	.0003090	.0014534
	TOTAL	233				20,929	273,771,170	3,800,415	$ 342,037.35	$ 57,885.00	$ 399,922.35						
1/2 Full Fee																	
	24,000	1	37,000	6.47	8.76	37	324,120	5,718	514.62	47.50	562.12	.013908	.001283	.015191	.0015877	.0001466	.0017343
	26,000	3	41,000	6.25	9.49	123	1,167,270	19,680	1,771.20	172.50	1,943.70	.014400	.001402	.015802	.0015174	.0001478	.0016652
	28,000	9	45,333	6.08	10.22	408	4,169,760	67,105	6,039.45	607.50	6,646.95	.014802	.001488	.016290	.0014484	.0001457	.0015941
	36,000	12	38,750	5.49	13.14	465	6,110,100	84,699	7,622.91	1,500.00	9,122.91	.016393	.003225	.019618	.0012476	.0002455	.0014931
	40,000	9	42,333	5.25	14.60	381	5,562,600	72,571	6,531.39	1,395.00	7,926.39	.017142	.003661	.020803	.0011742	.0002508	.0014250
	42,000	15	31,800	5.13	15.33	477	7,312,410	92,982	8,368.38	2,550.00	10,918.38	.017543	.005345	.022888	.0011444	.0003487	.0014931
	TOTAL	49				1,891	24,646,260	342,755	$ 30,847.95	$ 6,272.50	$ 37,120.45						
75% Fee																	
	26,000	1	71,000	6.25	9.49	71	673,790	11,360	1,022.40	81.25	1,103.65	.014400	.001144	.015544	.0015174	.0001206	.0016380
	28,000	11	58,727	6.08	10.22	646	6,602,120	106,250	9,562.50	1,058.75	10,621.25	.014802	.001638	.016440	.0014484	.0001604	.0016088
	32,000	2	41,500	5.78	11.68	83	969,440	14,359	1,292.31	275.00	1,567.31	.015570	.003313	.018883	.0013330	.0002837	.0016167
	36,000	21	52,190	5.49	13.14	1,096	14,401,440	199,635	17,967.15	3,832.50	21,799.65	.016393	.003496	.019889	.0012476	.0002661	.0015137
	38,000	5	59,000	5.37	13.87	295	4,091,650	54,934	4,944.06	1,025.00	5,969.06	.016759	.003474	.020233	.0012083	.0002505	.0014588
	40,000	8	56,000	5.27	14.60	448	6,540,800	85,009	7,650.81	1,820.00	9,470.81	.017077	.004062	.021139	.0011697	.0002783	.0014480
	42,000	34	44,588	5.13	15.33	1,516	23,240,280	295,516	26,596.44	8,500.00	35,096.44	.017543	.005606	.023149	.0011444	.0003657	.0015101
	TOTAL	82				4,155	56,519,520	767,063	$ 69,035.67	$ 16,592.50	$ 85,628.17						
1/2 —75%																	
	28,000	3	29,333	6.08	10.22	88	899,360	14,473	1,302.57	159.39	1,461.96	.014801	.001811	.016612	.0014483	.0001772	.0016255
	36,000	7	44,571	5.49	13.14	312	4,099,680	56,830	5,114.70	673.75	5,788.45	.016393	.002159	.018552	.0012476	.0001643	.0014119
	40,000	4	56,000	5.27	14.60	224	3,270,400	42,504	3,825.36	475.00	4,300.36	.017077	.002120	.019197	.0011697	.0001452	.0013149
	42,000	7	20,286	5.13	15.33	142	2,176,860	27,680	2,491.20	910.00	3,401.20	.017543	.006408	.023951	.0011444	.0004180	.0015624
	TOTAL	21				766	10,446,300	141,487	$ 12,733.83	$ 2,218.14	$ 14,951.97						
60% Fee	26,000	3	40,000	6.25	9.49	120	1,138,800	19,200	1,728.00	201.00	1,929.00	.014400	.001675	.016075	.0015174	.0001765	.0016939
	28,000	5	41,600	6.08	10.22	208	2,125,760	34,210	3,078.90	395.00	3,473.90	.014802	.001899	.016701	.0014484	.0001858	.0016342
	40,000	1	67,000	5.27	14.60	67	978,200	12,713	1,144.17	184.00	1,328.17	.017077	.002746	.019823	.0011697	.0001881	.0013578
	42,000	11	39,000	5.13	15.33	429	6,576,570	83,625	7,526.25	2,222.00	9,748.25	.017543	.005179	.022722	.0011444	.0003379	.0014823
	TOTAL	20				824	10,819,330	149,748	$ 13,477.32	$ 3,002.00	$ 16,479.32						
1/2 60% Fee																	
	20,000	1	6,000	6.92	7.30	6,	43,800	867	78.03	22.00	100.03	.013005	.003666	.016671	.0017815	.0005023	.0022838
	TOTAL	1				6,	43,800	867	78.03	$ 22.00	$ 100.03						

TABLE 5 - 2

CHARACTERISTICS OF MOTOR VEHICLE OPERATION AND TAXATION IN MONTANA

(SHOWING VEHICLE MILE AND TON MILE TAX CONTRIBUTIONS)

(continued)

VEHICLE TYPE	LICENSED GROSS WEIGHT GROUP POUNDS	NUMBER OF TRAILERS & SEMI-TRAILERS	AVERAGE FOR 1955			ESTIMATED 1955 TOTAL		COMPUTED FUEL CONSUMPTION	MOTOR FUEL TAX AT 8¢ PER GAL. ($)	BASIC REGIS. & G.V.W. Fee ($)	TOTAL HIGHWAY USER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TON MILE CONTRIBUTION		
			VEHICLE MILES	MILES PER GAL.	GROSS OPR. WEIGHT (TONS)	EST. VEHICLE MILES OPR. 1955 (000)	EST. GROSS TON MILES OPR. 1955					MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)	MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWA USER TAX (dollars)
Full Fee																	
	6,000	8,519	315	30.46	1.95	2,685	5,235,750	88,148	7,051.84	80,930.50	87,982.34	.002626	.030141	.032767	.0013469	.0154573	.0168042
	8,000	135	9,304	24.90	2.60	1,256	3,265,600	50,141	4,035.28	2,565.00	6,600.28	.003212	.002042	.005254	.0012357	.0007855	.0020212
	10,000	97	7,784	21.30	3.25	755	2,453,750	35,466	2,835.68	1,989.50	4,824.18	.003755	.002633	.006388	.0011557	.0008108	.0019665
	12,000	101	7,535	18.74	3.90	761	2,967,900	40,608	3,248.64	2,222.00	5,470.64	.004268	.002919	.007187	.0010946	.0007487	.0018433
	14,000	76	10,947	16.83	4.55	832	3,785,600	49,435	3,954.80	1,786.00	5,740.80	.004753	.002146	.006899	.0010447	.0004718	.0015165
	16,000	109	13,927	15.33	5.20	1,518	7,893,600	99,021	7,921.68	2,888.50	10,810.18	.005218	.001902	.007120	.0010036	.0003659	.0013695
	18,000	491	17,086	14.11	5.65	8,389	49,075,650	594,542	47,563.36	15,957.50	63,520.86	.005669	.001902	.007571	.0009692	.0003252	.0012944
	24,000	16	7,667	11.54	7.80	138	1,076,400	11,958	956.64	1,192.50	2,149.14	.006932	.008641	.015573	.0008887	.0011079	.0019966
	26,000	5	26,200	10.91	8.45	131	1,106,950	12,007	960.56	411.25	1,371.81	.007332	.003139	.010471	.0008678	.0003715	.0012393
	28,000	14	28,766	10.46	9.10	403	3,667,300	38,527	3,082.16	1,347.50	4,429.66	.007648	.003343	.010991	.0008404	.0003674	.0012078
	30,000	145	24,793	9.87	9.75	3,595	35,051,250	364,235	29,138.80	16,675.00	45,813.80	.008105	.004638	.012743	.0008313	.0004757	.0013070
	32,000	476	38,761	9.43	10.40	18,450	191,880,000	1,956,521	156,521.68	65,450.00	221,971.68	.008483	.003547	.012030	.0008157	.0003411	.0011568
	34,000	14	37,571	9.04	11.05	526	5,812,300	58,185	4,654.80	2,240.00	6,894.80	.008849	.004258	.013107	.0008008	.0003854	.0011862
	36,000	263	36,243	8.69	11.70	9,532	111,524,400	1,096,892	87,751.36	47,997.50	135,748.86	.009205	.005035	.014240	.0007868	.0004304	.0012172
	38,000	148	34,027	8.37	12.35	5,036	62,194,600	601,672	48,133.76	30,340.00	78,473.76	.009557	.006024	.015581	.0007739	.0004878	.0012617
	40,000	7	33,143	8.07	13.00	232	3,016,000	28,748	2,299.84	1,589.00	3,888.84	.009913	.006849	.016762	.0007625	.0005269	.0012894
	42,000	10	70.400	7.80	13.65	704	9,609,600	90,256	7,220.48	2,500.00	9,720.48	.010256	.003551	.013807	.0007514	.0002602	.0010116
	TOTAL	10,626				54,943	499,616,650	5,216,362	$ 417,331.36	$ 278,081.75	$ 695,412.11						
1/2 Full Fee	6,000	1,325	146	30.46	1.95	193	376,350	6,336	506.88	9,606.25	10,113.13	.002626	.049773	.052399	.0013468	.0255248	.0268716
	8,000	51	5,725	24.90	2.60	292	759,200	11,726	938.08	739.50	1,677.58	.003212	.002532	.005744	.0012356	.0009741	.0022097
	10,000	20	3,500	21.30	3.25	70	227,500	3,286	262.88	305.00	567.88	.003755	.004357	.008112	.0011555	.0013407	.0024962
	12,000	21	3,381	18.74	3.90	71	276,900	3,788	303.04	336.00	639.04	.004268	.004732	.009000	.0010944	.0012134	.0023078
	14,000	10	5,200	16.83	4.55	52	236,600	3,089	247.12	167.50	414.62	.004752	.003221	.007973	.0010445	.0007079	.0017524
	16,000	38	5,947	15.33	5.20	226	1,175,200	14,742	1,179.36	693.50	1,872.86	.005218	.003068	.008286	.0010035	.0005901	.0015936
	18,000	52	8,115	14.11	5.85	422	2,468,700	29,907	2,392.56	1,105.00	3,497.56	.005669	.002618	.008287	.0009692	.0004476	.0014168
	24,000	5	4,400	11.54	7.80	22	171,600	1,906	152.48	190.65	343.13	.006930	.008665	.015595	.0008886	.0011110	.0019996
	26,000	8	7,375	10.91	8.45	59	498,550	5,407	432.56	365.04	797.60	.007331	.006187	.013518	.0008676	.0007322	.0015998
	28,000	1	15,000	10.46	9.10	15	136,500	1,434	114.72	53.13	167.85	.007648	.003542	.011190	.0008404	.0003892	.0012296
	30,000	20	13,300	9.87	9.75	266	2,593,500	26,950	2,156.00	1,250.00	3,406.00	.008105	.004699	.012804	.0008313	.0004819	.0013132
	32,000	109	17,385	9.43	10.40	1,895	19,708,000	200,954	16,076.32	8,038.75	24,115.07	.008483	.004242	.012725	.0008157	.0004079	.0012236
	34,000	3	17,000	9.04	11.05	51	563,550	5,641	451.28	255.00	706.28	.008848	.005000	.013848	.0008008	.0004525	.0012533
	36,000	53	16,472	8.69	11.70	873	10,214,100	100,460	8,036.80	5,101.25	13,138.05	.009205	.005843	.015048	.0007868	.0004994	.0012862
	38,000	9	16,556	8.37	12.35	149	1,840,150	17,801	1,424.08	967.50	2,391.58	.009557	.006493	.016050	.0007739	.0005258	.0012997
	42,000	28	14,714	7.80	13.65	412	5,623,600	52,820	4,225.60	3,640.00	7,865.60	.010256	.008834	.019090	.0007514	.0006472	.0013986
	TOTAL	1,753				5,068	46,870,200	486,247	$ 38,899.76	$ 32,814.07	$ 71,713.83						
75% Fee																	
	6,000	753	231	30.46	1.95	174	339,300	5,712	456.96	6,310.14	6,767.10	.002626	.036265	.038891	.0013468	.0185975	.0199443
	8,000	36	7,333	24.90	2.60	264	686,400	10,602	848.16	603.00	1,451.16	.003212	.002284	.005496	.0012357	.0008785	.0021142
	10,000	22	5,000	21.30	3.25	110	357,500	5,164	413.12	393.36	806.48	.003755	.003756	.007331	.0011556	.0011003	.0022559
	12,000	13	4,692	18.74	3.90	61	237,900	3,255	260.40	247.00	507.40	.004286	.004049	.008317	.0010946	.0010383	.0021329
	14,000	14	6,643	16.83	4.55	93	423,150	5,525	442.00	281.82	723.82	.004752	.003030	.007782	.0010445	.0006660	.0017105
	16,000	21	11,000	15.33	5.20	231	1,201,200	15,068	1,205.44	469.98	1,675.42	.005218	.002034	.007252	.0010035	.0003913	.0013948
	18,000	83	10,590	14.11	5.85	679	5,142,150	62,296	4,983.68	2,231.04	7,214.72	.005669	.002538	.008207	.0009692	.0004339	.0014031
	24,000	6	4,750	11.54	7.60	36	296,400	3,292	263.36	417.52	680.88	.006930	.010987	.017917	.0008885	.0014086	.0022971
	26,000	5	11,600	10.91	8.45	58	490,100	5,316	425.28	317.20	742.48	.007332	.005468	.012800	.0008677	.0006472	.0015149
	28,000	16	13,875	10.46	9.10	222	2,020,200	21,223	1,697.84	1,195.04	2,892.88	.007647	.005383	.013030	.0008404	.0005915	.0014319
	30,000	8	17,625	9.87	9.75	141	1,374,750	14,285	1,142.80	710.00	1,852.80	.008104	.005035	.013139	.0008313	.0005165	.0013478
	32,000	260	22,931	9.43	10.40	5,962	62,004,800	632,237	50,578.96	27,463.80	78,042.76	.008483	.004606	.013089	.0008157	.0004429	.0012586
	36,000	4	17,250	8.69	11.70	69	807,300	7,940	635.20	557.52	1,192.72	.009205	.008080	.017285	.0007868	.0006906	.0014774
	40,000	3	18,000	8.07	13.00	54	702,000	6,691	535.28	519.39	1,054.67	.009912	.009618	.019530	.0007625	.0007399	.0015024
	TOTAL	1,246				8,356	76,083,150	798,606	$ 63,888.48	$ 41,716.81	$ 105,605.29						
1/2 75% Fee																	
	6,000	46	109	30.46	1.95	5	9,750	164	13.12	307.74	320.86	.002624	.061548	.064172	.0013456	.0315631	.0329087
	8,000	6	4,000	24.90	2.60	24	62,400	963	77.04	60.28	157.32	.003210	.003345	.006555	.0012346	.0012865	.0025211
	10,000	8	2,125	21.30	3.25	17	55,250	798	63.84	111.52	175.36	.003755	.006560	.010315	.0011555	.0020185	.0031740
	12,000	7	2,000	18.74	3.90	14	54,600	747	59.76	101.50	161.26	.004268	.007250	.011518	.0010945	.0018590	.0029535
	14,000	5	2,600	16.83	4.55	14	63,700	831	66.48	75.30	141.78	.004748	.005378	.010126	.0010436	.0011821	.0022257
	16,000	1	6,000	15.33	5.20	6	31,200	391	31.28	16.19	47.47	.005213	.002698	.007911	.0010026	.0005189	.0015215
	18,000	28	4,536	14.11	5.85	127	742,950	9,000	720.00	516.32	1,236.32	.005669	.004065	.009734	.0009691	.0006950	.0016641
	24,000	1	3,000	11.54	7.80	3	23,400	259	20.72	31.10	51.82	.006906	.010366	.017272	.0008855	.0013291	.0022146
	26,000	1	5,000	10.91	8.45	5	42,250	458	36.64	36.72	73.36	.007328	.007344	.014672	.0008672	.0008691	.0017363
	28,000	1	7,000	10.46	9.10	7	63,700	669	53.52	42.35	95.87	.007645	.006050	.013695	.0008402	.0006648	.0015050
	30,000	1	10,000	9.87	9.75	10	97,500	1,013	81.04	49.38	130.42	.008104	.004938	.013042	.0008312	.0005065	.0013377
	32,000	79	9,962	9.43	10.40	787	8,184,800	83,457	6,676.56	4,566.99	11,243.55	.008483	.005803	.014286	.0008157	.0005580	.0013737
	36,000	16	2,938	8.69	11.70	47	549,900	5,408	432.64	1,195.04	1,627.68	.009205	.025426	.034631	.0007868	.0021732	.0029600
	40,000	2	6,500	8.07	13.00	13	169,000	1,610	128.80	183.12	311.92	.009907	.014086	.023993	.0007621	.0010836	.0018457
	TOTAL	202				1,079	10,150,400	105,768	$ 8,461.44	$ 7,313.55	$ 15,774.99						

TABLE 5 - 2

CHARACTERISTICS OF MOTOR VEHICLE OPERATION AND TAXATION IN MONTANA

(SHOWING VEHICLE MILE AND TON MILE TAX CONTRIBUTIONS)

(continued)

VEHICLE TYPE LICENSED GROSS WEIGHT GROUP	NUMBER OF TRAILERS AND SEMITRAILERS REGISTERED	AVERAGE FOR 1955			ESTIMATED 1955 TOTAL		COMPUTED FUEL CONSUMPTION	MOTOR FUEL TAX AT 8¢ PER GAL. ($)	BASIC REGIS. & G.V.W. FEE ($)	TOTAL HIGH-WAY USER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TON MILE CONTRIBUTION		
		VEHICLE MILES	MILES PER GAL.	GROSS OPR. WEIGHT (TONS)	VEHICLE MILES OPERATED (000)	GROSS TON MILES OPR.					MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)	MOTOR FUEL TAX (dollars)	BASIC REGIS. (dollars)	TOTAL HIGHWAY USER TAX (dollars)
60% FEE																
6,000	888	176	30.46	1.95	156	304,200	5,121	409.68	6,837.60	7,247.28	.002626	.043830	.046456	.0013467	.0224773	.0238240
8,000	2	6,500	24.90	2.60	13	33,800	522	41.76	30.80	72.56	.003212	.002369	.005581	.0012355	.0009112	.0021467
10,000	9	3,667	21.30	3.25	33	107,250	1,549	123.92	146.70	270.62	.003755	.004445	.008200	.0011554	.0013678	.0025232
12,000	9	4,222	18.74	3.90	38	148,200	2,027	162.16	154.80	316.96	.004267	.004073	.008340	.0010942	.0010445	.0021387
14,000	19	6,053	16.83	4.55	115	523,250	6,833	546.64	343.90	890.54	.004753	.002990	.007743	.0010447	.0006572	.0017019
16,000	5	9,000	15.33	5.20	45	234,000	2,935	234.80	99.50	334.30	.005217	.002211	.007428	.0010034	.0004252	.0014286
18,000	83	9,470	14.11	5.85	786	4,598,100	55,705	4,456.40	1,950.50	6,406.90	.005669	.002481	.008150	.0009692	.0004242	.0013934
24,000	9	3,889	11.54	7.80	35	273,000	3,032	242.56	393.75	636.31	.006930	.011250	.018180	.0008885	.0014423	.0023308
26,000	13	9,615	10.91	8.45	125	1,056,250	11,457	916.56	685.75	1,602.31	.007332	.005486	.012818	.0008677	.0006492	.0015169
28,000	10	10,300	10.46	9.10	103	937,300	9,847	787.76	617.50	1,405.26	.007648	.005995	.013643	.0008405	.0006588	.0014993
30,000	16	15,063	9.87	9.75	241	2,349,750	24,417	1,953.36	1,168.00	3,121.36	.008105	.004846	.012951	.0008313	.0004971	.0013284
32,000	117	19,812	9.43	10.40	2,318	24,107,200	245,811	19,664.88	10,120.50	29,785.38	.008483	.004366	.012849	.0008157	.0004198	.0012355
34,000	6	18,500	9.04	11.05	111	1,226,550	12,278	982.24	600.00	1,582.24	.008849	.005405	.014254	.0008008	.0004892	.0012900
36,000	13	18,154	8.69	11.70	236	2,761,200	27,157	2,172.56	1,475.50	3,648.06	.009205	.006252	.015457	.0007868	.0005344	.0013212
42,000	23	34,130	7.80	13.65	785	10,715,250	100,641	8,051.28	3,542.00	11,593.28	.010256	.004512	.014768	.0007514	.0003306	.0010820
TOTAL	1,222				5,140	49,375,300	509,332	$ 40,746.56	$ 28,166.80	$ 68,913.36						
1/2 - 60% FEE																
6,000	150	87	30.46	1.95	13	25,350	426	34.08	952.50	986.58	.002621	.073269	.075890	.0013444	.0375740	.0389184
10,000	6	1,500	21.30	3.25	9	29,250	422	33.76	78.90	112.66	.003751	.008766	.012517	.0011542	.0026974	.0038516
12,000	2	2,000	18.74	3.90	4	15,600	213	17.04	27.20	44.24	.004260	.006800	.011060	.0010923	.0017436	.0028359
18,000	4	4,750	14.11	5.85	19	111,150	1,346	107.68	67.00	174.68	.005667	.003526	.009193	.0009688	.0006028	.0015716
24,000	1	2,000	11.54	7.80	2	15,600	173	13.84	26.88	40.72	.006920	.013440	.020360	.0008872	.0017231	.0026103
26,000	1	5,000	10.91	8.45	5	42,250	458	36.64	31.38	68.02	.007328	.006776	.013604	.0008672	.0007427	.0016099
28,000	2	6,000	10.46	9.10	12	109,200	1,147	91.76	71.76	163.52	.007646	.005980	.013626	.0008403	.0006571	.0014974
32,000	12	9,417	9.43	10.40	113	1,175,200	11,983	958.64	579.00	1,537.64	.008483	.005123	.013606	.0008157	.0004927	.0013084
34,000	2	8,000	9.04	11.05	16	176,800	1,769	141.52	110.00	251.52	.008845	.006875	.015720	.0008005	.0006222	.0014227
36,000	10	6,500	8.69	11.70	65	760,500	7,479	598.32	617.50	1,215.82	.009204	.009500	.018704	.0007867	.0008120	.0015987
42,000	1	17,000	7.80	13.65	17	232,050	2,179	174.32	82.00	256.32	.010254	.004823	.015077	.0007512	.0003534	.0011046
TOTAL	191				275	2,692,950	27,595	$ 2,207.60	$ 2,644.12	$ 4,851.72						
20% FEE																
6,000	5,630	434	30.46	1.95	2,443	4,763,850	80,203	6,416.24	33,217.00	39,633.24	.002626	.013596	.016222	.0013469	.0069727	.0083196
8,000	67	8,045	24.90	2.60	539	1,401,400	21,646	1,731.68	790.60	2,522.28	.003212	.001466	.004678	.0012357	.0005642	.0017999
10,000	46	6,130	21.30	3.25	282	916,500	13,239	1,059.12	556.60	1,615.72	.003755	.001973	.005728	.0011556	.0006073	.0017629
12,000	23	6,217	18.74	3.90	143	557,700	7,630	610.40	285.20	895.60	.004268	.001994	.006262	.0010945	.0005114	.0016059
14,000	40	8,925	16.83	4.55	357	1,624,350	21,212	1,696.96	508.00	2,204.96	.004753	.001422	.006175	.0010447	.0003127	.0013574
16,000	22	11,636	15.33	5.20	256	1,331,200	16,699	1,335.92	292.60	1,628.52	.005218	.001142	.006360	.0010035	.0002198	.0012233
18,000	137	14,336	14.11	5.85	1,964	11,489,400	139,132	11,135.36	1,986.50	13,121.86	.005669	.001011	.006680	.0009692	.0001729	.0011421
24,000	5	5,600	11.54	7.80	28	218,400	2,426	194.08	106.25	300.33	.006931	.003794	.010725	.0008886	.0004865	.0013751
26,000	3	11,667	10.91	8.45	35	295,750	3,208	256.64	72.75	329.39	.007332	.002078	.009410	.0008678	.0002460	.0011138
28,000	5	17,200	10.46	9.10	86	782,600	8,221	657.68	136.25	793.93	.007647	.001584	.009231	.0008404	.0001741	.0010145
30,000	4	22,500	9.87	9.75	90	877,500	9,118	729.44	124.00	853.44	.008103	.001377	.009481	.0008313	.0001413	.0009726
32,000	18	28,000	9.43	10.40	504	5,241,600	53,446	4,275.68	639.00	4,914.68	.008483	.001267	.009750	.0008157	.0001219	.0009376
34,000	1	27,000	9.04	11.05	27	298,350	2,986	238.88	40.00	278.88	.008847	.001481	.010328	.0008007	.0001341	.0009348
36,000	8	31,750	8.69	11.70	254	2,971,800	29,228	2,338.24	356.00	2,694.24	.009205	.001401	.010606	.0007868	.0001198	.0009066
38,000	26	29,808	8.37	12.35	775	9,571,250	92,592	7,407.36	1,274.00	8,681.36	.009557	.001643	.011200	.0007739	.0001331	.0009070
40,000	2	30,000	8.07	13.00	60	780,000	7,434	594.72	107.00	701.72	.009912	.001783	.011695	.0007625	.0001372	.0008997
TOTAL	6,037				7,843	43,121,650	508,420	$ 40,678.40	$ 40,491.75	$ 81,170.15						
1/2 - 20% FEE																
6,000	963	328	30.46	1.95	316	616,200	10,374	829.92	5,248.35	6,078.27	.002626	.016608	.019234	.0013468	.0085173	.0098641
8,000	18	8,056	24.90	2.60	145	377,000	5,823	465.84	196.20	662.04	.003212	.001353	.004565	.0012356	.0005204	.0017560
10,000	9	6,222	21.30	3.25	56	182,000	2,629	210.32	99.45	309.77	.003755	.001775	.005530	.0011556	.0005464	.0017020
12,000	6	6,167	18.74	3.90	37	144,300	1,974	157.92	67.20	225.12	.004268	.001816	.006084	.0010944	.0004657	.0015601
14,000	8	8,875	16.83	4.55	71	323,050	4,218	337.44	90.80	428.24	.004752	.001278	.006030	.0010445	.0002811	.0013256
16,000	1	12,000	15.33	5.20	12	62,400	782	62.56	11.65	74.21	.005213	.000970	.006183	.0010026	.0001867	.0011893
18,000	19	14,368	14.11	5.85	273	1,597,050	19,347	1,547.76	232.75	1,780.51	.005669	.000852	.006521	.0009691	.0001457	.0011148
24,000	1	6,000	11.54	7.80	6	46,800	519	41.52	15.63	57.15	.006920	.002605	.009525	.0008872	.0003340	.0012212
26,000	1	12,000	10.91	8.45	12	101,400	1,099	87.92	17.13	105.05	.007326	.001427	.008753	.0008671	.0001689	.0010360
28,000	5	17,200	10.46	9.10	86	782,600	8,221	657.68	93.15	750.83	.007647	.001083	.008730	.0008404	.0001190	.0009594
32,000	1	27,000	9.43	10.40	27	280,800	2,863	229.04	22.75	251.79	.008482	.000842	.009324	.0008157	.0000810	.0008967
34,000	13	27,077	9.04	11.05	352	3,889,600	38,938	3,115.04	325.00	3,440.04	.008849	.000923	.009772	.0008009	.0000836	.0008845
TOTAL	1,045				1,393	8,403,200	96,787	$ 7,742.96	$ 6,420.06	$ 14,163.02						

TABLE 5 - 2

CHARACTERISTICS OF MOTOR VEHICLE OPERATIOH AND TAXATIOH IN MONTANA
(SHOWING VEHICLE MILE AND TOH MILE TAX CONTRIBUTIONS)
(continued)

VEHICLE TYPE	NUMBER REGISTERED			AVERAGE FOR 1955			TOTAL VEH. MILES OPR. 1955 (000)	TOTAL GROSS TON MILES OPR. 1955	NUMBER GALS. FUEL CONSUMED 1955	MOTOR FUEL TAX AT 7¢ PER GAL. ($)	BASIC REGIS. & G.V.W. FEE ($)	TOTAL HIGH-WAT OSER TAXES PAID ($)	AVERAGE VEHICLE MILE CONTRIBUTION			AVERAGE TOH MILE CONTRIBUTION		
	TOTAL	EXEMPT	TAXABLE	VEHICLE MILES	MILES PER GAL.	GROSS OPR. WEIGHT							MOTOR FUEL TAX (dollare)	8ASIC REGIS. (dollare)	TOTAL HIGHWAT USER TAX (dollare)	MOTOR FUEL TAX (dollare)	8ASIC REGIS. (dollare)	TOTAL HIGHWAT USER TAX (dollare)
BUSSES																		
GAS POWERED																		
6,000	141	117	24	6,546	10.80	2.25	157	353,250	14,537	1,017.59	672.00	1,689.59	.006481	.004280	.010761	.002881	.001902	.004783
8,000	120	101	19	7,133	9.35	3.00	136	408,000	14,545	1,018.15	798.00	1,816.15	.007486	.005868	.013354	.002495	.001456	.004451
10,000	126	100	26	7,762	8.33	3.75	202	757,500	24,250	1,697.50	1,456.00	3,153.50	.008403	.007208	.015611	.002241	.001922	.004163
12,000	116	100	16	8,388	7.59	4.50	134	603,000	18,655	1,305.85	1,280.00	2,585.85	.009745	.009552	.019297	.002166	.002123	.004289
14,000	111	100	11	8,991	7.02	5.25	99	519,750	14,103	987.21	1,001.00	1,988.21	.009972	.010111	.020083	.001899	.001926	.003825
16,000	71	50	21	9,634	6.54	6.00	202	1,212,000	30,887	2,162.09	2,646.00	4,808.09	.010703	.013099	.023802	.001784	.002183	.003967
18,000	117	100	17	10,137	6.12	6.75	172	1,161,000	28,105	1,967.35	2,261.00	4,228.35	.011438	.013145	.024583	.001695	.001947	.003642
20,000	106	66	40	6,642	5.79	7.50	276	2,070,000	47,668	3,336.76	5,600.00	8,936.76	.012090	.020290	.032380	.001612	.002705	.004317
22,000	32	32	—	7,875	5.50	8.25	- -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
24,000	26	—	26	11,077	5.25	9.00	288	2,592,000	54,857	3,839.99	3,822.00	7,661.99	.013333	.013271	.026604	.001481	.001475	.002956
26,000	139	1	138	17,719	5.02	9.75	2,445	23,838,750	487,052	34,093.64	20,286.00	54,379.64	.013944	.008297	.022241	.001430	.000851	.002281
TOTAL	1,105	767	338				4,111	33,515,250	734,659	$ 51,426.13	$ 39,822.00	$91,248.13						
8USSES																		
OIESEL POWERED																		
26,000	45	---	45	17,733	6.25	9.75	798	7,780,500	127,680	11,491.20	9,450.00	20,941.20	.014400	.011842	.026242	.001477	.001215	.002692
28,000	51	34	17	29,922	6.08	10.50	509	5,344,500	83,717	7,534.53	3,570.00	11,104.53	.014803	.007014	.021817	.001410	.000668	.002078
30,000	1	—	1	44,000	5.91	11.25	44	495,000	7,445	670.05	210.00	880.05	.015228	.004773	.020001	.001354	.000424	.001778
32,000	2	2	—	406,500	5.78	12.00	- -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
34,000	2	2	--	407,000	5.62	12.75	- -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
36,000	8	8	--	406,875	5.49	13.50	- -	- - - - -	- - - -	- - - -	- - - -	- - - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
38,000	8	—	8	93,375	5.37	14.25	747	10,644,750	139,106	12,519.54	2,016.00	14,535.54	.016760	.002699	.019459	.001176	.000189	.001365
TOTAL	117	46	71				2,098	24,264,750	357,948	$ 32,215.32	$ 15,246.00	$ 47,461.32						

Total Computed Highway user revenue - all groups	$ 21,144,487.74
Actual Revenue Collected, 1955	21,921,000.00
Oifference	$ 776,512
Percentage not accounted for	3.5%

TABLE 5-3

TON MILE ALLOCATION OF PROGRAM COSTS

TYPE OF VEHICLE BY G.V.W. CLASS	ANNUAL TON MILES Per Vehicle Mile (1955) (Av. Operating Wt.)	ESTIMATED ANNUAL VEHICLE MILES (1966) (000)	ESTIMATED ANNUAL TON MILES (1966) (000)	TOTAL VEHICULAR RESPONSIBILITY $2.522 Per 1000 Ton Miles ($)	AVERAGE PROGRAM COST RESPONSIBILITY Per Vehicle Mile (CENTS)
PASSINGER CARS	2.000	2,647,858	5,295,716	13,355,796	0.504
COMMERCIAL TRUCKS					
Under 6,000	2.250	116.139	261,313	659,031	0.567
8,000	3.000	63,493	190,479	480,388	0.757
10,000	3.750	43,649	163,684	412,811	0.946
12,000	4.500	19,399	87,296	220,161	1.135
14,000	5.250	12,825	67,331	169,809	1.324
16,000	6.000	23,005	138,030	348,112	1.513
18,000	6.750	30,326	204,701	516,256	1.702
20,000	7.500	33,902	254,265	641,256	1.891
22,000	8.250	32,322	266,657	672,509	2.081
24,000	9.000	13,591	113,319	285,791	2.103
26,000	9.750	11,315	110,321	278,230	2.459
28,000	10.500	18,654	195,867	493,977	2.648
30,000	11.250	626	7,043	17,762	2.837
32,000	12.000	1,640	19,680	49,633	3.026
34,000	12.750	2,678	34,145	86,114	3.216
36,000	13.500	3,618	48,843	123,182	3.405
38,000	14.250	2,530	36,053	90,926	3.581
40,000	15.000	4,154	62,310	157,146	3.783
42,000	15.750	32,086	505,355	1,274,505	3.972
FARM TRUCKS					
Under 6,000	2.250	106,626	239,909	605,050	0.567
8,000	3.000	41,632	124,896	314,988	0.757
10,000	3.750	18,454	69,203	174,530	0.946
12,000	4.500	6,532	29,394	74,132	1.135
14,000	5.250	8,446	44,342	111,831	1.401
16,000	6.000	23,682	142,092	358,356	1.513
18,000	6.750	43,158	291,317	734,701	1.702
20,000	7.500	43,773	328,313	828,005	1.892
22,000	8.250	52,004	429,033	1,082,021	2.081
24,000	9.000	40,981	368,829	930,187	2.270
26,000	9.750	16,092	156,897	395,694	2.459
28,000	10.500	10,074	105,777	266,770	2.648
TRACTOR TRUCKS					
14,000	5.109	564	2,881	7,266	1.288
16,000	5.839	979	5,716	14,416	1.473
18,000	5.570	2,386	13,290	33,517	1.405
20,000	7.300	5,172	37,756	95,221	1.841
22,000	8.030	7,599	61,020	153,892	2.025
24,000	8.760	7,213	63,186	159,355	2.209
26,000	9.490	8,209	77,903	196,471	2.393
28,000	10.220	11,016	112,584	283,937	2.577
30,000	10.951	511	5,596	14,113	2.762
32,000	11.679	783	9,145	23,064	2.946
34,000	12.410	754	9,357	23,598	3.130
36,000	13.140	17,061	224,182	565,387	3.314
38,000	13.870	1,509	20,930	52,785	3.498
40,000	14.600	4,825	70,445	177,662	3.682
42,000	15.330	12,773	195,810	493,833	3.878
TRAILERS					
Under 6,000	1.943	8,927	17,345	43,744	0.490
8,000	2.600	6,623	17,220	43,429	0.656
10,000	3.250	3,254	10,576	26,673	0.820
12,000	3.900	2,725	10,628	26,804	0.984
14,000	4.550	2,355	10,715	27,023	1.147
16,000	5.200	3,519	18,299	46,150	1.311
18,000	5.850	19,725	115,391	291,016	1.475
24,000	7.801	432	3,370	8,499	1.967
26,000	8.451	681	5,755	14,514	2.131
28,000	9.100	1,475	13,423	33,853	2.298
30,000	9.750	6,890	67,178	169,423	2.459
32,000	10.400	47,693	496,007	1,250,930	2.623
34,000	11.050	1,756	19,404	48,937	2.785
36,000	11.700	17,924	209,711	528,891	2.951
38,000	12.350	9,341	115,361	290,940	3.115
40,000	13.000	565	7,345	18,524	3.279
42,000	13.650	3,004	41,005	103,415	3.443
BUSSES					
Under 6,000	2.248	2,354	5,292	13,346	0.567
8,000	3.000	1,582	4,746	11,969	0.757
10,000	3.752	1,674	6,281	15,841	0.946
12,000	4.500	1,546	6,957	17,546	1.135
14,000	5.253	1,579	8,294	20,917	1.325
16,000	6.000	1,077	6,462	16,297	1.513
18,000	6.750	1,803	12,170	30,693	1.702
20,000	7.500	1,037	7,778	19,616	1.892
24,000	9.000	425	3,825	9,647	2.270
26,000	9.750	4,809	46,888	118,252	2.459
28,000	10.503	2,386	25,060	63,201	2.649
30,000	11.250	65	731	1,844	2.837
38,000	14.249	1,103	15,717	39,638	3.594
TOTAL ALL VEHICLES			12,631,145	$31,855,749	

mercial operators, both members and non-members of the Association, of reports designed to show average annual characteristics of their operation, including: the number of vehicles in their fleets; the estimated annual mileage developed by each vehicle, both in and out of state; the registered gross vehicle weights and corresponding average operating weights; the type of fuel used by each vehicle, and the amount consumed annually; and the class of commodity carried. A very fine sample of approximately 1,500 trucks was obtained through the cooperation of the firms contacted by the Association; it comprised types of operation from those of the large fleets to those of the owners of single trucks. The other part of the study entailed the controlled investigation of the operating characteristics of a selected range of vehicles. The amount of weight transported on selected trips, the type of vehicle and registered gross vehicle weight, the length of the trip, and the amount and type of fuel consumed were duly recorded.

From this study, a graph of the fuel consumption of single unit trucks and combinations was prepared. (Appendix, Chart A-3.) By an analytical comparison of the operations of single unit trucks and combinations, the added fuel considered to be used by trailers of different weights was computed, and plotted on a graph. (Appendix, Chart A-4.) Graphs of operating weight versus registered gross vehicle weight for trucks and trailers as shown by Charts A-5, A-6, and A-7 of Appendix A were constructed. All curves shown have been mathematically fitted.

There was some concern during the course of this analysis about the application of the findings of the commercial truck study to other trucks. It was not known if the sample was sufficiently inclusive. However, a broad application has been fully justified by the results.

Table 5-2 on the pages following this discussion shows the derivation of 1955 revenues by vehicle type; registered gross vehicle weight class; fee group; and annual and semi-annual registrations. The taxes paid by each vehicle are reduced to a per vehicle mile and a per ton mile base.

The Allocation of Motor Vehicle Tax Responsibility for Program Costs by the Ton-Mile Procedure

In order to effect a direct comparison between the vehicular responsibility derived from the ton-mile theory and that derived from the incremental theory, the user costs derived from the earnings-credit analysis for the 20-year construction program, (which anticipate a 30-year fiscal program, or equate to present motor-vehicle user revenues),[1] were distributed amongst ton miles projected to the mid-year of the program, 1966. This projection was on the basis of indices of registration and travel shown on Charts A-1 and A-2 of Appendix A, the same indices used to project travel for the incremental allocation.

After determining the total program responsibility of each vehicle type from the product of ton-miles and rate of charge per ton-mile, these figures were reduced to a responsibility per vehicle mile which is directly comparable to the results of the incremental analysis. Table 5-3 shows the application of this procedure and a tabulation of the results.

It may appear from a cursory inspection of the allocations in table 5-3 and a comparison with those in table 5-9, that the ton-mile method and incremental method have produced similar results. A closer examination will disclose that such is not the case. The close agreement in charges to commercial vehicles is contingent upon the large cost assignment to farm trucks in this broad application of the ton-mile procedure. The incremental method mediates the charges against farm trucks by allowing for their lesser travel on high weight-cost roads. In a sense this seems unfair, since excess earnings from these same facilities have been used to overcome a deficit on the roads the farm trucks do use. The particular significance, at this point, is that commercial truck rates, even with this cost burden removed, exceed those produced in the incremental assignment. Passenger car rates, it will be noted, are substantially less in the ton-mile allocation.

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[1] See discussion in Part 2-B: Non-Motor-Vehicle-User's Responsibility.

OLD TIME BLUES

Even climatic conditions or a light passenger car need a basic highway.

Illustration by: Bernice Powell

Part 2B

THE DETERMINATION OF MOTOR VEHICLE TAX RESPONSIBILITY IN MONTANA BY THE INCREMENTAL METHOD

The Reason

Although the preceding pages of this Chapter have been devoted to a Gross-Ton-Mile Analysis, it is not intended to rest an allocation of motor vehicle tax responsibility on that base. The simplicity of concept in the ton-mile theory together with the ready availability of data for the solution are attractive features which have led to its rather general application. Its advocates argue that highway beneficiaries are equitably charged for value received, which is a reasonable philosophy, and that value received is equitably measured by the product of weight transported and distance travelled, which is doubtful. Weight times distance would be a valid unit of measurement of value received only if all vehicles travelling on the highways were transporting weight for specific remuneration. The purposes of passenger car travel and heavy commercial truck travel are entirely different. Business or vacation travel in passenger cars does not produce ton mile remuneration. A light panel delivery loaded with bread could easily receive the same monetary value as a heavy dump truck loaded with dirt for a trip of the same length.

The advocates of the ton-mile theory have advanced other arguments, arguments to support their contention of equitability in the device. They have described ton-miles as "energy absorbed by transportation[1]" similar to the foot-pound which it does not resemble. The layman may be inclined to accept the ton-mile theory because it apparently measures two factors which obviously influence highway costs, weight and wear. However, highway costs are by no means proportional to ton-miles, and no competent investigator has claimed otherwise. The usual reason for present day application of the theory to derive or support a tax structure is the lack of available data for another, admittedly more equitable, analysis. There is another reason, as one observer has it: "It is believed the ton-mile method yields the highest defensible assignment of costs and hence the maximum level of taxes which may be assessed fairly against large vehicles." The Gross-Ton-Mile-Theory is, in fact prejudiced against heavy commercial trucks. To use the device for producing a maximum assignment against these vehicles seems hardly defensible or fair.

The ton-mile allocation is presented in this report purely as a measure of what is to follow. The data was originally assembled to check the traffic compilation which is used in the incremental analysis against revenue produced by motor vehicle taxation in the year 1955. Although the ton-mile allotment produces a measure of the incremental allotment in one direction, it has been thought reasonable to present it for that purpose. Unfortunately, the time and data have not been available to make an analysis which would provide a measure in the opposite direction.

The Cost-Function Approach, as it is called, is certainly the most detailed, and probably the most complex of all methods applied to motor vehicle tax determination. This method involves the separation of all elements of highway construction and maintenance cost, and an assignment of each to various vehicles according to the function served in accommodating that particular type of vehicle. Both the benefits philosophy and incurred cost philosophy are incorporated in an analysis of this type. The basic data required is a complete breakdown of annual construction, maintenance and administration cost, item by item. Although the information is undoubtedly available from Highway Department records, its compilation in usable form is a time consuming process that could not be undertaken in the course of this present study. The cost-function approach generally produces the lowest assignment of costs against heavy vehicles. (At least this has been the general result of applications in the past.) The incremental method, which will be described presently, generally produces an assignment in between those of the ton-mile and cost-function methods.

The incremental theory is thought by many to be the fairest method of determining motor vehicle tax responsibility. Its philosophy is sound and in accord with the economics of commerce in a free enterprise society. This philosophy would have vehicles of different sizes and weights pay for highway costs in proportion to the costs they occasion. Thus the competitive use of highway transport as a benefit to the general economy of the nation will be fully realized.

An Introduction to the Method

The incremental method involves an engineering determination of the cost that vehicles of different sizes and weights incur on the highway structure, and on the geometrics of highways such as gradient and curvature. It is fairly obvious that a heavy truck requires a thicker paved structure to support its weight than a light truck or passenger car, and the additional thickness is measurable to a reasonable degree of accuracy. It is equally obvious that a heavy vehicle requires an improvement of geometrics over those required by a light vehicle, but the degree of improvement required is more difficult to determine. Thus, where it is necessary to reduce steep gradient to keep all traffic, otherwise hampered by the presence of heavy vehicles, moving at desirable speeds, the cost of reducing gradient is a cost incurred by the heavy vehicle. But, in all fairness, the question must be asked: would the gradient have been reduced in any case for the comfort of passenger car travellers alone if they were the only vehicles on the roadway? No method of tax determination produces an exact answer to all the questions that arise. It should be sufficient, therefore, that an application of the incremental theory produces a reasonable and just relationship between highway costs and the vehicles that incur them.

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[1] Report of the Legislative Committee for the Study of Motor Transportation in Oregon, page 5, as quoted on page 75, A Factual Discussion of Motor Truck Operation, Regulation and Taxation, Bureau of Public Roads. See comments following.

The additional thickness of pavement required by the heavy truck is an "increment" required for its accommodation. The cost of the additional pavement is its responsibility alone. However, it still shares responsibility for the initial or "basic" structure on which the increment is placed, and should share in its cost. In the incremental determination, essentially, the whole roadway is considered to be composed of a basic structure which all vehicles require, with a succession of increments added, each accommodating a successively heavier vehicle. Each vehicle type is charged for the increment that is its own responsibility alone and a share of all lesser increments upon which its own requirement is placed, and, in addition, a share of the "basic" structure.

In practice it is usual to relate the increments to axle loads rather than gross vehicle weight, since it is the weight of an axle more than the overall weight of a vehicle that determines the need for a thicker and more costly structure. In the application of the incremental method which follows, geometrics are also related to axle load for simplicity inasmuch as axle load is generally a measure of the size of a truck. It is more important that the structure-load relationship be correct since base and surface are the most costly elements of road construction.

Considering structure alone for the moment—the historical process that has produced the modern highway plant has been a process of continued improvement of main highways with more pavement and related base structure to accommodate increased traffic, more speed, and more weight. Each intermediate "stage" was adequate for the traffic of that day. In many respects the less travelled routes of the modern highway system are similar to those intermediate "stages" since their traffic is similar to the traffic on the main highways of yesteryear. Heavy axle loads are less frequent than they are on main stem roads, and, presently, it will be seen that the frequency of heavy axles is the controlling factor. Just as dirt roads on main arteries have evolved to modern high-standard paved facilities so will these roadways evolve as their traffic increases and heavy axle loads become more frequent. It is reasonable to conceive, therefore, and this becomes a basic premise of this incremental solution, that all low and intermediate standard roadways are "stages" in the construction of high-standard roadways. Upon these, added increments of structure will be placed to accommodate more traffic and heavier axle loads.

Just as it was necessary to interject the element of axle load rather than gross vehicle weight into this analysis, so it is necessary to interject the element of axle load frequency or repetition. It is not entirely the magnitude of an axle load that demands a better highway structure, but, rather, the number of repetitions that may be expected of a load of given magnitude. It is for this reason that it is not necessary to build all highways to the same structural standard. A secondary highway that carries only a few maximum axles per day requires less thickness of structure than a primary road that carries many maximum axles per day. The magnitude of axle loading is used as a design criterion only where there occurs innumerable repetitions of a load of that magnitude.

Thus it is an interrelation between volume of traffic and magnitude of load that is applied to structural design. Pure volume has its own effect in requiring highways, mostly where geometrics—width, gradient, curvature and sight distance—are concerned. Since the wider commercial vehicles with less hill climbing ability have an effect on this pure volume condition, they incur roadway cost in this respect in addition to that incurred by their heavy axles. It is possible to make an association between heavy vehicles and the total roadway they require which will result in a reasonable charge against them for all of these circumstances of incurred cost.

The Basic Data

This incremental solution has been prepared for a highway construction program that will provide the State of Montana with an adequate highway system in twenty years. It will not be entirely valid if this construction program is not embarked upon. The assumption has been made that all present highways have been paid for in proper proportion by the vehicles using them, except for continuing maintenance cost which has been included in the determinations. All new construction cost has been apportioned by the incremental method to vehicles of different sizes and weights considered to have incurred these costs.

The design standards and costs of the new highways are those calculated by Sate Highway Department engineers under the expert guidance of the Automotive Safety Foundation, and with the cooperation of city and county engineering staffs. The standards to which the new facilities have been designed are set forth in tables 59, 60, 61, and 62 of Appendix A.

Vehicle registrations for the year 1954 were compiled from the records of the Registrar of Motor Vehicles and the State Highway Department Gross

Vehicle Weight Tax Division. Traffic data for the year 1954 was compiled from three sources: Highway Planning Survey Traffic Classification, Counts and Loadometer Surveys; A Highway Planning Survey Motor Vehicle Use Study; and an independent survey of truck operation made by the Montana Motor Transport Association. Tables 56, 57, and 58 of Appendix A show the 1954 travel by vehicle classes and by gross vehicle weight groups for the three main rural highway systems. Traffic for the urban system, while based on special classification counts made by the Highway Planning Survey, was estimated for the different weight groups.

Registrations and traffic were projected to the mid-program year, 1966, on a series of indices developed from historical trends. Graphs of these projections are shown in Charts A-1 and A-2 of Appendix A. Projections to the mid-year are necessary in an analysis of this type to obtain an average charge per vehicle for the period.[1] The expected travel in 1966 on the several study systems is shown in table 35 of Appendix A.

In order to obtain the axle loads characteristic of different vehicles, the Oregon State Highway Department obliged with a tabulation from their Weighmaster Operations of a sample of 30,00 trucks loaded to their registered gross vehicle weight and coded by type of vehicle, axle arrangement, gross weight, axle loads, and commodity transported. Weighted average axle loads were calculated for all vehicle types by gross vehicle weight groups. Where a radical departure from the average occurred because of commodity transported, it was intended to separate travel for vehicles carrying that commodity for separate responsibility determination. There were no cases where this was necessary. However, regrouping of some vehicles did become necessary where it was apparent that they could not load to their registered gross vehicle weight and stay within legal axle load limits. For example, no two axle single unit trucks in the sample which carried more than 28,000 pounds gross vehicle weight managed legal axle loads. For this reason, such vehicles have been regrouped at 28,000 pounds for the calculations which follow. Other non-typical operations have also been excluded from these determinations.

The Montana Method

It is not intended, in this report, to enter into detailed analytics or argument to support the contentions and assumptions of this incremental solution. It is expected that a technical report on the Montana Incremental Method will be published sometime in January, 1957. At a September 6, 1956, meeting, the Incremental advisory Committee which is composed of the State's leading highway engineers[2] was able to vote a tentative endorsement of the proposals contained herein. Because of the complicated nature of the problem and the short time this committee has had to work with it, the endorsement was necessarily tentative pending further meetings and discussion. However, close scrutiny by these men did not disclose any apparent weakness in the method or conflict with engineering principles.

The initial relationship upon which the orthodox incremental solution is based is that between volume of traffic and repeated axle load. This relationship will be clarified by a definition of the repeated load. The repeated axle load is that load which is repeated often enough that its magnitude determines the amount of structure that must be built into a roadway. It may, however, consist not only of axles of the given magnitude but also axles of larger magnitude which are not, in themselves, repeated often enough to require more structure. Thus, high volume traffic arteries on the Interstate and some parts of the Proposed State Highway Systems which carry most of the heavy commercial vehicles, must be designed for repetitions of the maximum legal axle load. Other parts of the Proposed State Highway System, which carry fewer of the heaviest commercial vehicles but still a large number of heavy vehicles, may be designed for a repeated axle load somewhat less than maximum.

Most mileage on the Secondary System carries few heavy vehicles, (even though their proportion of total traffic may be the same), and its structure may be designed for a still smaller repeated axle load. A concept of equivalent wheel loads somewhat similar to this concept of repeated axle loads has been used for some years in the method of pavement design used by the State of California Division of Highways.[3]

It is possible to derive an empirical relationship between traffic volume and the magnitude of the repeated axle load. In answer to a questionnaire circulated by Mr. G. P. St. Clair, Chairman of the Committee on the Incremental Solution of the Highway Research Board, engineers from several eastern states contributed to this determination. An approximation of the results of their combined judgment is provided by the formula $L = .3 / v$ where L is the maximum repeated load in thousands of pounds and v is the traffic volume in vehicles per day. Applying this formula to the several volume classes of roadway designated by the Automotive Safety Foundation for the construction of rural highways in Montana,[4] the following relationships are established.

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[1] The resulting per vehicle charge, however, is predicated on the entire motor-vehicle user's share of the program cost being paid within the 20-year period. and may be generally higher than practical. In this case, the whole curve of responsibility is adjusted to a level determined by the fiscal study.

[2] Mr. Scott P. Hart, State Highway Engineer; Dr. E. R. Dodge, Dean of Civil Engineering, Montana State College; Mr. William Huffine, District Engineer (Montana), Bureau of Public Roads. (Mr. Mort Flint, formerly District Engineer, (Montana), Bureau of Public Roads, was a member of this Committee until his transfer from the Montana District.)

[3] In California design procedure the anticipated numbers and magnitudes of wheel loads to be imposed on the proposed highway are converted to an equivalent number of repetitions of a "standard" 5,000 pound wheel load.

[4] Tables 59, 60 and 61, Appendix A.

Maxium Traffic Volume (VPD)	$L = .3\sqrt{v}$	Maximum Axle* Load (Kips)
400	6	6
1000	9.5	10
2000	13.4	14
4000**	19.0	18

*The last column is rounded for practical purposes.
**Considered a reasonable upper limit of two lane volume accommodation.

At traffic volumes which are less than 200-400 vehicles per day there is a distinctive change in the type of surfacing recommended by the Automotive Safety Foundation. (Proposed State Highway System.) For this volume of traffic, and for larger volumes, weight dependent bituminous or Portland cement-concrete surfaces of intermediate or high type will usually be employed; for smaller volumes, low cost bituminous surfaces are contemplated. Although axle load is still an important factor in incurred cost on this surface type, it does not operate with the same uniformity of effect. It is for this reason that load-volume relationships are not listed for accommodations less than 200-400 vehicles per day.

In addition to the considerations already stated, the lowest traffic volume-load relationship must begin at a point where weather and frost action is not a determinant of structural design. A certain minimum thickness of structure is required for these conditions in any case. However, the choice of a relationship at an accommodation of from 200 to 400 vehicles per day should insure that a structure is being considered where the elements are no longer a determining factor.

Besides the statistical relationships outlined above, the structural thickness proposed for 200 to 400 vehicles per day in this State is reasonably related to the accommodation of a 6,000 pound axle. This amounts to 5 inches of total structure on the best soils; 15 inches of structure on the worst silts.

A basic weight relationship is therefore established: that a roadway which is built to accommodate 200-400 vehicles per day will sustain innumerable repetitions of a 6,000 pound axle load, (or its equivalent). Such a load will be applied by a 5-ton two-axle truck loaded in the normal manner.

Figure 5-1 is a graphical representation of a homogeneous system of highways such as the Proposed State Highway System. The "treads" of the staircase on the left portion of the diagram represent roadways built to accommodate the traffic volumes shown. Each tread is continued to the right portion of the diagram to show that roadway as a "stage" of the roadway above. The second step, being the roadway that will accommodate 200 to 400 vehicles per day, will accommodate repetitions of a 6,000 pound axle. The riser, or increment number 3, increases the accommodation to 1,000 vehicles per day and the axle to 10,000 pounds. Riser number 2 converts the accommodation to 2,000 VPD and 14,000 pounds; riser number 1 to 4,000 VPD, and 18,000 pounds. Vehicles requiring the top riser also require all of lower structure plus the basic foundation, and shall share part of each "incremental" cost.

The cost of each mile of roadway for any one tread is determined from the Automotive Safety Foundation system cost analysis. The cost of each increment per mile is obtained by subtraction.

The 14,000 to 18,000 pound axles found on the highway, (and thus the vehicles which impose them), are charged with the number of miles of increment number 1 which will be built at the cost per mile figure determined by subtraction. They are also charged with part of the cost of increment number 2 dependent on their use of this increment, (vehicle miles of travel), as opposed to the use by other vehicles which require it. The total cost of this increment, calculated at the per mile rate obtained by subtraction for the number of miles of increment built, is apportioned, therefore, amongst 10,000 pound to 18,000 pound axles. Similarly, the cost of increment number 3 is apportioned amongst 6,000 pound to 18,000 pound axles.

In order not to confuse the problem to this point, the incremental costs which have been determined by subtraction have been handled as if they were structural costs alone. In fact, they include the cost of geometric improvements to the roadway to accommodate the different volumes of traffic. It may be demonstrated[1] that the order of geometrics so included is a reasonable weight charge against large and heavy vehicles; the implication intended is not that geometrics can be matched to vehicle size and weight in the same way that structure is matched to axle load, but, instead, that a reasonable proportion of the total geometrics of the system will be apportioned to heavy vehicles in the result by carrying geometric costs along with structural costs. (The base mean standard structure is also built to geometric standards somewhat influenced by large and heavy vehicles.) The results of the intended distribution: 4 feet of a total 10 foot shoulder; 2% of a total 6% gradient; 175 feet of a total 525 foot non-passing sight distance, etc.; are not disproportionate charges against all trucks over 5 tons. (And they are automatically graduated by weight.)

There remains another theoretical consideration before calculations can be made. It is desirable to distribute the cost of each increment on a scale graduated by weight, and, at the same time, to interject relative use of the facilities. The number of axle load repetitions imposed on a highway depends on the annual travel of all vehicles applying that load. It is possible to determine the effect of annual axle miles alone in incurring cost at all load levels. The axle miles applied by any load are divided by a constant, (1.058), raised to the load as an exponent, the resulting term being designated effective axle miles.[1] Weight costs are determined

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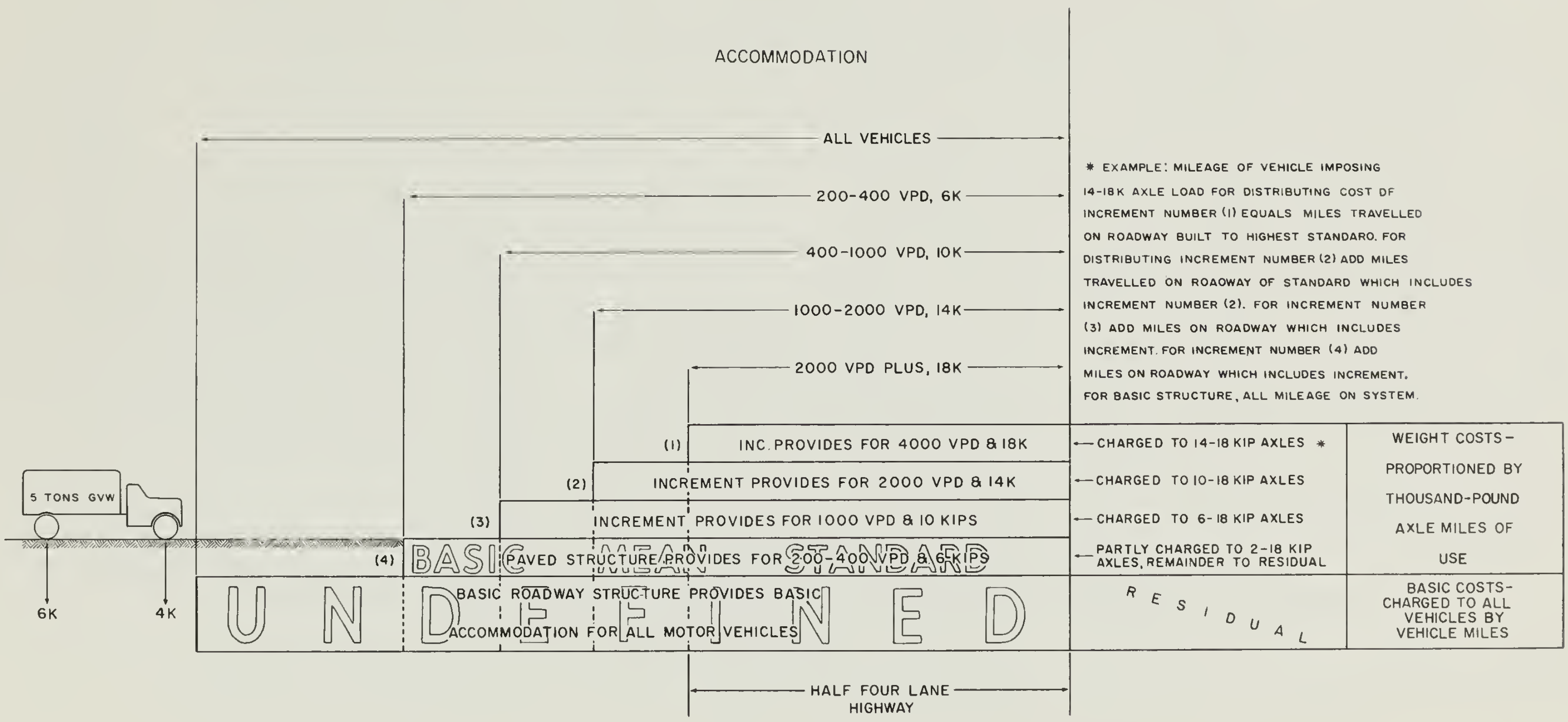
[1] The contentions regarding geometrics will be fully supported, and the derivation of kip-axle-miles will be described in the technical report on the Montana Incremental Method.

FIGURE 5-1

MONTANA FACT FINDING COMMITTEE
ON
HIGHWAYS, STREETS, AND BRIDGES

INCREMENTAL SOLUTION

DISTRIBUTION OF HIGHWAY COSTS TO MOTOR VEHICLE USERS
ON
PRIMARY AND INTERSTATE HIGHWAY SYSTEMS

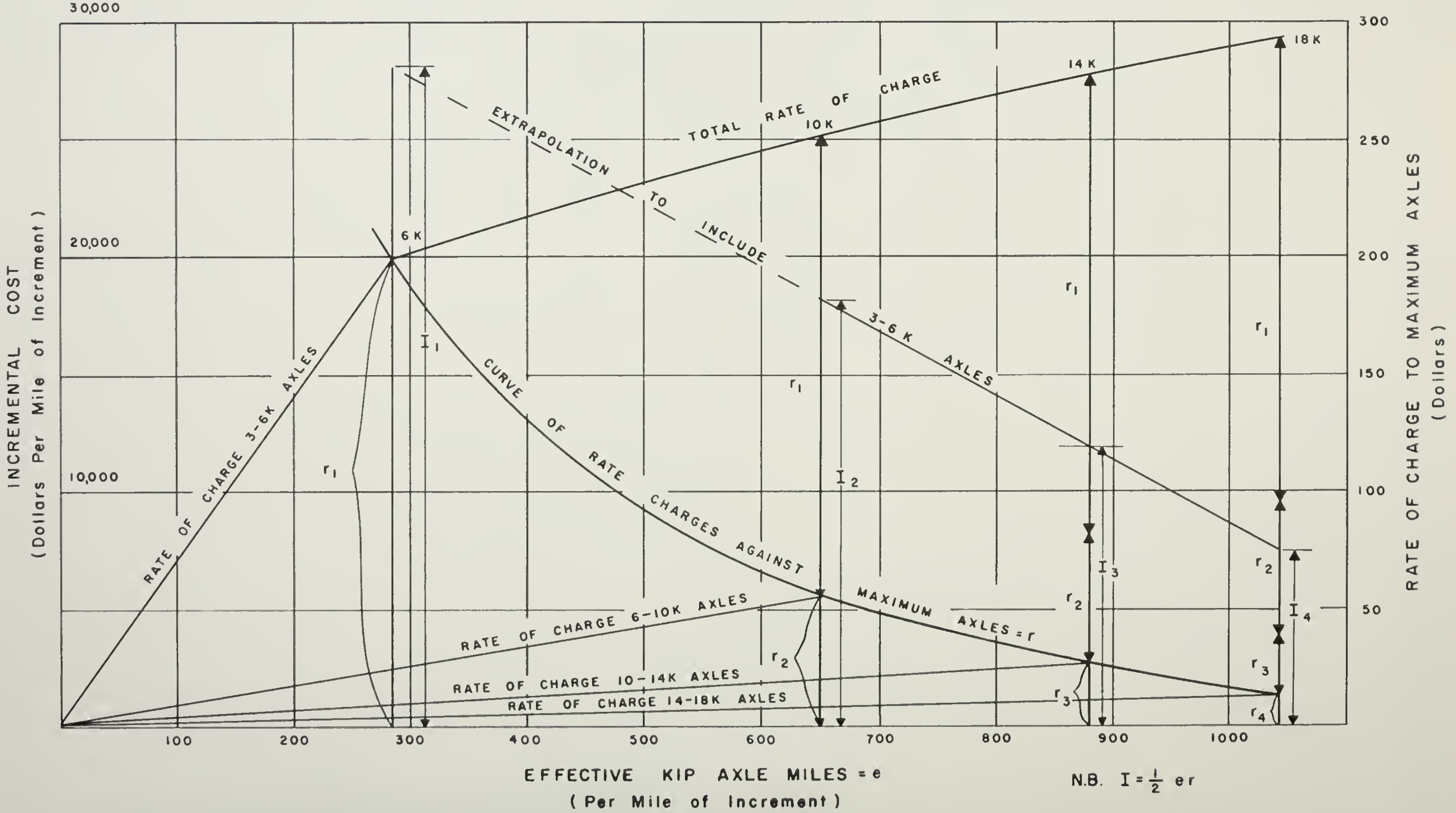

ACCOMMODATION
ALL VEHICLES
200-400 VPD, 6K
400-1000 VPD, 10K
1000-2000 VPD, 14K
2000 VPD PLUS, 18K
(1)
INC. PROVIDES FOR 4000 VPD & 18K
(2)
INCREMENT PROVIDES FOR 2000 VPD & 14K
(3)
INCREMENT PROVIDES FOR 1000 VPD & 10 KIPS
(4)
BASIC MEAN STANDARD
PAVED STRUCTURE PROVIDES FOR 200-400 VPD & 6 KIPS
UNDEFINED
BASIC ROADWAY STRUCTURE PROVIDES BASIC ACCOMMODATION FOR ALL MOTOR VEHICLES
CHARGED TO 14-18 KIP AXLES *
CHARGED TO 10-18 KIP AXLES
CHARGED TO 6-18 KIP AXLES
PARTLY CHARGED TO 2-18 KIP AXLES, REMAINDER TO RESIDUAL
RESIDUAL
WEIGHT COSTS – PROPORTIONED BY THOUSAND-POUND AXLE MILES OF USE
BASIC COSTS – CHARGED TO ALL VEHICLES BY VEHICLE MILES
HALF FOUR LANE HIGHWAY
5 TONS GVW
6K
4K

* EXAMPLE: MILEAGE OF VEHICLE IMPOSING 14-18K AXLE LOAD FOR DISTRIBUTING COST OF INCREMENT NUMBER (1) EQUALS MILES TRAVELLED ON ROADWAY BUILT TO HIGHEST STANDARD. FOR DISTRIBUTING INCREMENT NUMBER (2) ADD MILES TRAVELLED ON ROADWAY OF STANDARD WHICH INCLUDES INCREMENT NUMBER (2). FOR INCREMENT NUMBER (3) ADD MILES ON ROADWAY WHICH INCLUDES INCREMENT. FOR INCREMENT NUMBER (4) ADD MILES ON ROADWAY WHICH INCLUDES INCREMENT. FOR BASIC STRUCTURE, ALL MILEAGE ON SYSTEM.

FIGURE 5-2

MONTANA FACT FINDING COMMITTEE ON HIGHWAYS, STREETS & BRIDGES

GRAPHICS OF INCREMENTAL COST DISTRIBUTION



N.B. $I = \frac{1}{2} er$

to be proportional to load multiplied by effective axle miles, the final expression being designated effective kip-axle-miles.

Further reference is to Figure 5-1. The costs of increments 1, 2, and 3 are apportioned amongst their respective axles, as described previously, on the basis of effective kip-axle-miles. (A kip is a common engineering term for 1,000 pounds.) So far only the costs of these three increments are determinable, and are distributed to axles from 6,000 pounds upwards. However, there is no reason to believe that weight costs begin at this level. Some part of the cost of the structure below the tread of step number 4 is also influenced by weight. In a practical tax structure it will be desirable to have weight costs ascend upwards for every axle heavier than that applied by a passenger car. It is possible to determine the cost of the undefined increment number 4 consistent with reasoning applied elsewhere in the analysis.

Weight costs within an increment are proportional to effective kip-axle-miles for a regular progression of load. The actual cost curve plotted against load is logarithmic. It may be shown that a similar logarithmic curve of cost progression against load will be obtained when total increment costs are inversely proportional to effective kip-axle-miles. The total cost of increments 1, 2, and 3 are known. By plotting effective kip-axle-miles on these increments against the respective cost, the straight line produced may be extrapolated upwards to include the effective kip-axle-miles produced by 3 to 6 kip-axles. Against this figure may be read the cost per mile of the undefined increment to be distributed to these axles. (See Figure 5-2 and the technical report for a full explanation of this manipulation.)

Having obtained and distributed all of the weight costs in the system, the difference between the total system cost and the sum of the weight costs is the cost of the basic roadway structure which all vehicles require. This cost is then apportioned amongst all vehicles using the highway in proportion to their use or annual axle miles of travel.

Construction, Maintenance & Administration Costs

So that this incremental solution will not average different characteristics of motor-vehicle use and different highway needs beyond the limits of practicality, it is desirable and expedient to apply the method separately to four systems of highways: the Proposed State Highway System; the Interstate System; the Proposed Secondary System; and the Proposed Urban Arterial System. Local rural roads and local city streets are not part of this incremental analysis, although a user share of the cost of these facilities, as determined by the earnings-credit analysis, is added to the result.

The construction costs developed from the highway needs study were used as calculated for each design volume class where applicable, except that the grading cost curves were smoothed for excessive expenditure on some known facilities. This excessive cost is incurred mostly in rugged terrain where there is no present facility. To these construction costs, which include stopgap measures and surface replacement, were added maintenance costs determined by the same factors used in the needs study. Some reflection will disclose the pertinence of handling maintenance cost in this way. If a savings in maintenance results from adding an element of construction to accommodate certain vehicles, and if those vehicles have been charged for that element of construction, then they should realize the advantage. Small negative increments of maintenance cost did, in fact, develop. It was found that it would cost slightly less to maintain the highest type of facility than it would cost to maintain the next highest type, which is consistent with the findings of many studies made for the purposes of the incremental solution in other states.

A breakdown of maintenance cost was not necessary. Elements such as the cost of snow or slide removal were self-determining. Being the same for all classes of facility, they did not show up in the increments. The same may be said for off-road maintenance and erosion control. Other elements were too small a proportion of total cost to affect the results materially.

Right-of-way was not separated from other construction cost. In this State, these costs proved to be a small proportion of the whole. Although slight incremental costs developed from their inclusion, these were justifiable since they were contingent on the relocation of facilities for the improvement of gradient and other geometrics and, thus, disposable in the manner of geometric costs generally. The costs of historical markers and picnic sites were insignificant and needed no special consideration.

Four-lane highways were included as if they were double the equivalent mileage of two-lane facilities. The cost of their medians, additional right-of-way, and control of access were automatically excluded from incremental costs. It was not thought worth while to separately identify truck climbing lanes from the needs study by facility type. There were only a few such facilities and, since the cost determinations were averaged and adjusted to produce smooth curves for this analysis, their inclusion did not create disproportionate increments. For this reason, the larger part of their cost reverted to the basic structure which was distributed to all vehicles. This was consistent with a policy decision by the Fact Finding Committee that all vehicles benefit from their construction.

Rural State Highway System. The costs of constructing and maintaining the proposed Rural State Highways to the standards designated by the Highway Department and Automotive Safety Foundation were determined to be as follows:

Volume Class	Number of Miles	Cost Per Mile	Total Cost
(VPD)			
0 - 200	455.25	$ 52,527	$ 23,912,917
200 - 400	747.80	65,100	48,681,780
400 - 1,000	1,811.43	83,100	150,529,833
1,000 - 2,000	1,287.76	95,100	122,465,976
Over 2,000	439.15*	102,600	45,056,790
Excessive Grading[1]	....	....	6,001,704
Total			$396,649,000
Total Construction		$273,628,000	
Total Maintenance		123,021,000	
Sub-Total			$396,649,000
Administration		$ 19,254,000	
Structures		92,218,000	
Total		$508,121,000	
Average Annual Cost		$ 25,406,000	

*Includes 2 x 4—lane.

[1] Mostly occurs in mountainous terrain where no present facility exists.

The development of incremental costs on Proposed Rural State Highways was as follows:

Volume Class	Average construction and maintenance cost per mile	Increment of cost per mile	Axle load accommodated
(VPD)			(Kips)
0 - 200	$52,527	$	....
200 - 400	65,100[1]	....	....
....	....	18,000	6 - 18
400 - 1,000	83,100	....	....
....	....	12,000	10 - 18
1,000 - 2,000	95,100	....	....
		7,500	14 - 18
Over 2,000	102,600	....	....

[1] Includes increment of structure to sustain 3-18 K axles (inclusive).

APPORTIONMENT OF INCREMENTAL COSTS

Proposed Rural State Highways

Axle Load on Increment	Annual Effective Kip-Axle-Miles	Increment of Cost Required	Increment Cost per effective K. A. M.
(Kips)		($)	(cents)
3 - 18	2,742,986	*28,200	*1.028077
6 - 18	2,304,096	18,000	0.781217
10 - 18	1,447,266	12,000	0.829150
14 - 18	458,212	7,500	1.636797

*Extrapolated figures

TOTAL INCREMENTAL COSTS PER EFFECTIVE KIP-AXLE-MILE

Rural State Highways

Load Interval	Number Miles of Increment	Cost per effective Kip-Axle Mile per mile	Total Cost per effective Kip-Axle-Mile
(Kips)		(cents)	($)
14 - 18	439.15	1.636797	7.187994
10 - 18	1,726.91	0.829150	14.318674
6 - 10	3,538.34	0.781217	27.642114
3 - 6	4,286.14	1.028077	44.064820

Figure 5-2 shows the extrapolation of incremental costs to include 3,000 pound to 6,000 pound axles. This graph also illustrates the summation of cost rates against maximum axles that produces a smooth total weight-cost curve dependent upon effective kip-axle-miles. The technical report will contain mathematical derivations that indicate that the total weight-cost curve is indeed similar to those resulting within the increments which add together to produce segments of that curve.

Secondary System. The costs of constructing and maintaining the proposed Secondary System to designated standards were determined to be as follows:

Volume Class	Number of miles	Cost per Mile	Total Cost
(VPD)			
0 - 100	7,147.12	$ 17,388	$124,277,267
100 - 200	2,905.63	29,344	85,261,557
200 - 400	1,370.17	31,891	43,695,579
400 - 1,000	549.44	39,614	21,765,530
1,000 - 2,000	67.47	45,239	3,052,243
Over 2,000	31.36	50,950	1,597,804
Total			$279,649,980
Total Construction		$199,550,000	
Total Maintenance		80,100,000	
Sub-total			$279,650,000
Administration		$ 9,299,000	
Structures		32,991,000	
Total		$321,940,000	
Average Annual Cost		$ 16,097,000	

It will be noted that design standards for Secondary Highways are generally lower than those employed for Primary Highways. These lower standards were undoubtedly selected both for economic considerations and because fewer maximum axle loads would be expected in the normal complement of traffic. Because present highways are a larger credit to the finished product, construction costs were found to be considerably lower. The incremental costs for the construction of weight elements of the system were derived in the same way as for Primary Highways, except that the highest type facility was related to repetitions of a 14,000 pound axle.

DEVELOPMENT OF INCREMENTAL COSTS ON PROPOSED SECONDARY HIGHWAYS

Volume Class	Average Construction and Maintenance Cost per Mile	Increment of Cost per Mile	Axle Load Accommodated
(VPD)			(Kips)
0 - 100	$17.338	$	...
100 - 200	29,744	. .	. . .
200 - 400	31,891[1]	....	....
....	......	$ 7,723	6 - 14
400 - 1,000	39,614	....	....
....	....	5.625	10 - 14
Over 1,000	45.239	....	....

[1] Includes increment of structure to sustain 3-14 kip-axles (inclusive).

APPORTIONMENT OF INCREMENTAL COST

Proposed Secondary Highways

Axle Load on Increment	Annual Effective Kip-Axle-Miles	Increment of Cost Required	Increment Cost per Effective Kip-Axle-Mile
(Kips)			(Cents)
3 - 14	718,111	$8,250*	1.148847*
6 - 14	274,182	7,723	2.816742
10 - 14	65,245	5,625	8.621350

*Costs are extrapolated by same method as for Proposed State Highways.

TOTAL INCREMENTAL COSTS PER EFFECTVE KIP-AXLE-MILE

Secondary Highways

Load Interval	No. of Miles of Increment	Cost Per Effective Kip-Axle-Mile Per Mile	Total Cost per Effective Kip-Axle-Mile
(Kips)		(Cents)	(Dollars)
10 - 14	130.67[1]	8.621350	11.265518
6 - 10	648.27	2.816742	18.260093
3 - 6	2,018.44	1.148847	23.188787

[1] Additional cost of 2,000+VPD roadway prorated in this increment by adding equivalent miles (31.84 miles).

The program costs for constructing and maintaining the Interstate System were as follows:

1534.53* miles at $102,600 per mile		$157,442,778
Additional Right-of-Way, Control Access, Medians, Separations (except Structures), etc.[1]		72,555,222
TOTAL		$229,998,000
Total Construction	$195,191,000	
Total Maintenance	34,807,000	
Sub total		$229,998,000
Administration	19,146,000	
Structures	91,202,000	
TOTAL	$340,346,000	
Avg. Annual Cost	$ 17,017,000	

It will be noted that the Interstate System is to be built to the same general standards as designated for the highest type of proposed State Highway, except for additional right-of-way and control of access requirements, medians and fill and cut to separation structures, and other requirements in no sense dependent upon the size and weight of vehicles using the facility. Accordingly, the increments of cost which were used were the same as those used on the proposed State Highway System. The apportionment of these costs was accomplished as follows:

APPORTIONMENT OF INCREMENTAL COSTS

Interstate System

Axle Load on Increment	Annual Effective Kip-Axle-Miles	Increment of Cost Required	Increment Cost per Effective Kip-Axle-Mile
(Kips)			(Cents)
3 - 18	1,786,964	$28,200	1.578096
6 - 18	1,624,341	18,000	1.103142
10 - 18	1,383,460	12,000	0.867390
14 - 18	1,004,835	7,500	0.746391

TOTAL INCREMENTAL COSTS PER EFFECTIVE KIP-AXLE-MILE

Interstate Higways

Load Interval	No. of Miles of Increment	Cost per Effective Kip-Axle-Mile per Mile	Total Cost per Effective Kip-Axle-Mile
(Kips)		(Cents)	
14 - 18	1,534.53	0.746391	$11.453594
10 - 14	1,534.53	0.867390	13.310360
6 - 10	1,534.53	1.108142	17.004771
3 - 6	1,534.53	1.578096	24.216357

The smooth progression of charges when all increments are the same length will be noted.

Urban System. For the purposes of this analysis, proposed State Highway Extensions and Arterial Streets together have been classified as an Urban System. Detailed cost information was not readily available to determine the weight elements in these roadways, and the weight cost involved was not a large enough proportion of the whole to warrant a time consuming analysis. Approximately correct results (reducing any disproportion to an insignificant amount) could be achieved by reasonable assumptions, viz., that the costs of weight elements of the proposed Highway Extensions are in the same proportion as the cost of the weight elements of the Rural State Highways; and that the costs of weight elements of Arterial Streets are in the same proportion as the cost of weight elements of Rural Secondary Highways.

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*Includes 2 x 4—lane.

[1] None of these are considered to be weight costs.

Accordingly, the cost responsibilities per vehicle mile derived for the rural highways were applied to the travel on their urban counterparts. The resulting costs were then reduced by appropriate percentage factors so that their sums would equal the program costs for the respective urban highways. The program costs of construction, maintenance, and administration were:

Proposed State Highway Extensions (154.98 miles)	$22,450,720
Arterial Streets (208.80 miles)	27,174,000
Sub-total	$49,624,720
Structures	15,153,000
TOTAL	$64,777,720
Average Annual Cost	$ 3,239,000

Structures. All structures for the highways outlined in the preceding pages were taken together to comprise a fifth system for this analysis. From the standpoint of pure theory, it would have been preferable to consider structures separately by system served. However, this proved impractical with the assemblage of cost data available. Separation structures on Interstate Highways serving the Proposed State or Secondary Systems, (whose construction standards are dictated correspondingly), are part of the Interstate System cost. Even if the lengthy manual tabulation by system served had been made, it would have been necessary to apply two Federal Aid factors per system precluding integral analysis. Since relative usage is not such an important factor in dictating structural requirements, combining structures will not lead to disproportionate charges.

The general system of increment distribution has been similar to that employed on the roadways. A compromise relationship between actual vehicles and design loadings was the basis. The standard truck used in design is not a practical truck, but combines the critical effects of practical trucks.

The most severe design loading, H20-S16, was related to a 32,000 pound tandem axle load, both because the design vehicles imposes an axle of this magnitude, and because the size of this axle defines at least a 20 ton single unit truck. For some elements of structural cost the point loading is more important than the overall vehicle weight. The design loading of H15-S12 was related to a 24,000 pound tandem axle for similar reasons. Trailer axle loads were considered to have 75% of the effect of axles applied by the power unit for practical results when the two vehicles are added in combination. The incremental relationship between power units is then approximately the same as that between single unit trucks of the same gross vehicle weight, since the difference in cost between H20 and H15 loads is approximately the same as between H20-S16 and H15-S12. Trailers with 32,000 pound axles would actually be considered on the next lowest increment of structure at 24,000 pounds to add their responsibility to that of the power unit. Trailers with 24,000 pound axles would be rated at 75 percent of 24,000 pounds or 18,000 pounds. This load enters the second increment which begins at 16,000 pounds with 2,000 pounds. This increment spread, (16,000 pounds to 24,000 pounds), is 8,000 pounds. The trailer would be charged with 2,000 divided by 8,000 or 25 percent of the cost of the increment. The combination with 24,000 pound axles would, therefore, pay at 1¼ times the rate of a single unit truck with a 24,000 pound axle. Since H15-S12 loading produces approximately 25 percent more cost on the average structure as H15 loading alone—the relationship is reasonable.

H10 loading was considered to be the minimum design loading practical for stability of any structure, and was related to a practical 16,000 pound axle load which defines a 10-ton truck. The bridge engineers of the Highway Department were consulted for these determinations, and found no fault with the reasonableness of the procedure.

Incremental costs were determined for a weighted average width of structure so that there would be no width cost differential between H10 and H15 and H20 loadings. A width increment was determined for the basic H10 structure. Two feet, or 6.413% of the weighted average width of structures H15 and H20, was charged to trucks of 10,000 pound gross vehicle weight and over.

Structural costs were determined to be as follows:

Cost of H10 elements	$ 182,831,579
Additional cost of H15, (H15-S12), elements	22,515,580
Additional cost of H20, (H20-S16), elements	19,096,841
Cost of other Structures	7,120,000
TOTAL	$ 231,564,000

Total Program Cost Reconciliation

Incremental Systems:	
Interstate	$ 249,144,000
Proposed State (Rural)	415,903,000
Proposed Secondary (Rural)	288,949,000
Urban	49,625,000
Structures	231,564,000
Sub-Total	$1,235,185,000
Non-Incremental System:	
Local Roads	$ 267,320,000
Local Streets	77,780,000
Sub-Total	$ 345,100,000
Total	$1,580,285,000
Average Annual Cost	$ 79,014,000

After Federal-Aid and a non-motor vehicle user share is subtracted from program cost, there remains $627,140,000 to allocate to motor vehicles on the basis of the incremental theory. (See Schedule 1-A, Table 5-1, of the Earnings-Credit Analysis.) To this amount is added $10,000,000 estimated taxes that would not be collected from exempt vehicles.

TABLE 5-4

INCREMENTAL DISTRIBUTION PROPOSED STATE HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS	NO. OF AXLES IN GROUP & AV. MAXIMUM LOAD FRONT	INTER	REAR	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)
				2000+ VPD	@ $16.938397 14-18	1000+ VPD	@ $15.602983 10-14	400+ VPD	@ $ 7.324067 6-10	200+ VPD	@ $ 3.652459 3-6 Incl.
PASSENGER CARS	1 @ 2		1 @ 2	319681		735956		964622		994407	
COMMERCIAL TRUCKS											
UNDER 5000	1 @ 2		1 @ 3	11016		22431		32577		34222	86711
5001 6000	1 @ 2		1 @ 4	2773		6257		9021		9477	30254
6001 8000	1 @ 3		1 @ 5	6159		16097		24832		25892	163237
8001 10000	1 @ 3		1 @ 7	4543		11441		16214	76481	16711	113807
10001 12000	1 @ 4		1 @ 8	1660		5398		7180	36586	7436	55538
12001 14000	1 @ 4		1 @ 10	1133		3290		4518	25700	4716	35224
14001 16000	1 @ 4		1 @ 12	2910		6406	39080	8634	49113	8853	66122
16001 18000	1 @ 5		1 @ 13	4376		7959	49720	10816	61524	11023	88705
18001 20000	1 @ 5		1 @ 15	5360	34506	11381	72359	14867	84568	15259	122794
20001 22000	1 @ 6		1 @ 16	2869	18622	11097	70553	15641	88970	16238	138886
20001 22000	1 @ 4		2 @ 9	181		443		538	4373	550	5284
22001 24000	1 @ 7		1 @ 17	1113	7256	3619	23009	5792	60268	5956	50942
22001 24000	1 @ 4		2 @ 10	62		128		156	1331	157	1509
24001 26000	1 @ 8		1 @ 18	898	5859	3153	20047	5580	60174	5905	50506
24001 26000	1 @ 4		2 @ 11	104		201	1784	251	2142	256	2459
26001 28000	1 @ 13		1 @ 15	2953	19011	5625	70902	7888	89738	8136	69588
26001 28000	1 @ 4		2 @ 12	135		270	2471	336	2877	344	3305
28001 30000	1 @ 6		2 @ 12	104		220	2014	275	2346	283	3026
30001 32000	1 @ 6		2 @ 13	264		600	5623	750	6399	767	8200
32001 34000	1 @ 6		2 @ 14	399		983	9374	1258	10734	1294	13835
34001 36000	1 @ 8		2 @ 14	528		1355	12922	1735	23645	1786	19095
36001 38000	1 @ 8		2 @ 15	351	3390	930	8869	1200	16353	1237	13225
38001 40000	1 @ 8		2 @ 16	545	5306	1602	15278	2202	30008	2279	24366
40001 42000	1 @ 10		2 @ 16	5499	53539	12834	122395	16606	236149	16997	181721
FARM TRUCKS											
UNDER 5000	1 @ 2		1 @ 3	3504		7901		11808		12205	30925
5001 6000	1 @ 2		1 @ 4	2130		4800		7176		7417	23678
6001 8000	1 @ 3		1 @ 5	2307		4812		7596		8080	50940
8001 10000	1 @ 3		1 @ 7	1028		2104		3395	16014	3658	24912
10001 12000	1 @ 4		1 @ 8	314		674		1212	6176	1332	9948
12001 14000	1 @ 4		1 @ 10	399		1139		1513	8606	1675	12511
14001 16000	1 @ 4		1 @ 12	1235		3172	19351	4757	27059	5088	38002
16001 18000	1 @ 5		1 @ 13	1905		4827	30155	8954	50933	9781	78711
18001 20000	1 @ 5		1 @ 15	1225	7887	3155	20059	5363	30506	5874	47270
20001 22000	1 @ 6		1 @ 16	1864	12098	4848	30822	6997	39801	7517	64294
22001 24000	1 @ 7		1 @ 17	1709	11140	4341	27600	6485	67478	6922	59204
24001 26000	1 @ 8		1 @ 18	733	4783	1848	11749	2833	30551	2930	25061
26001 28000	1 @ 13		1 @ 15	527	3393	1301	16399	2038	23186	2054	17568
TRACTOR TRUCKS											
12001 14000	1 @ 4		1 @ 10	79		120		168	956	235	1755
14001 16000	1 @ 5		1 @ 11	167		364	2154	441	2509	478	3847
16001 18000	1 @ 5		1 @ 13	414		943	5890	1129	6422	1202	9673
18001 20000	1 @ 5		1 @ 15	910	5859	2103	13370	2504	14243	2611	21011
20001 22000	1 @ 6		1 @ 16	1332	8646	3131	19900	3725	21189	3878	33169
22001 24000	1 @ 7		1 @ 17	1273	8298	3007	19118	3532	36752	3675	31433
24001 26000	1 @ 8		1 @ 18	1450	9461	3486	22163	4131	44548	4163	35606
26001 28000	1 @ 13		1 @ 15	1958	12605	4461	56231	5170	58816	5462	46717
32001 34000	1 @ 6		2 @ 14	139		310	2957	347	2961	393	4202
34001 36000	1 @ 8		2 @ 14	3251		6706	63953	7970	108614	8740	93443
36001 38000	1 @ 8		2 @ 15	214	2067	739	7048	869	12696	893	9547
38001 40000	1 @ 8		2 @ 16	728	7088	1952	18616	2717	42865	2765	29562
40001 42000	1 @ 10		2 @ 16	2305	22442	3952	37689	5945	84542	6735	72006

*See text for calculations of effective Kip Axle Miles.

TABLE 5-4
(Continued)
INCREMENTAL DISTRIBUTION PROPOSED STATE HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		NO. OF AXLES IN GROUP & AV. MAXIMUM LOAD FRONT	INTER	REAR	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)	ANNUAL VEHICLE MILES (x1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000)
					2000+ VPD	@ $16.938397 14-18	1000+ VPD	@ $15.602983 10-14	400+ VPD	@ $ 7.324067 6-10	200+ VPD	@ $ 3.652459 3-6 Incl.
SEMI TRAILERS												
8001	10000			1 @ 10	79		107		131	745	142	607
10001	12000			1 @ 12	68		119	726	143	813	154	659
12001	14000			1 @ 14	440		887	5639	1072	6098	1148	4909
14001	16000			1 @ 16	633	4109	1346	8558	1643	9346	1754	7501
16001	18000			1 @ 18	3468	22626	7619	48440	9349	53180	9975	42659
22001	24000			2 @ 12	26		171	1565	293	2500	307	1969
24001	26000			2 @ 13	91		265	2483	380	3242	401	2572
26001	28000			2 @ 14	236		577	5503	765	6527	813	5215
28001	30000			2 @ 15	1096	10584	2495	23794	3165	27005	3370	21618
30001	32000			2 @ 16	8083	78699	17688	166686	21707	185213	23166	148606
FULL TRAILERS												
UNDER	3000		1 @ 3		881		1938		2477		2552	6466
3001	4000		1 @ 4		192		422		539		557	1778
4001	6000		1 @ 6		276		608		776		801	3425
4001	6000		2 @ 3		224		494		622		642	2440
6001	8000		1 @ 8		652		1433		1829	9320	1888	8074
8001	10000		1 @ 10		288		387		847	4818	873	3733
10001	12000		1 @ 12		235		412	2514	678	3857	700	2993
28001	30000	1 @ 14		1 @ 16	94	610	214	2722	264	3004	273	2335
30001	32000	1 @ 16		1 @ 16	506	6570	1108	14090	1421	16166	1469	12564
32001	34000	1 @ 16		1 @ 18	313	4073	684	8240	876	9966	906	7750
34001	36000	1 @ 18		1 @ 18	3001	39157	6565	83479	8425	95848	8699	74404
34001	36000	1 @ 14		2 @ 11	193		423	6444	543	7722	562	6009
36001	38000	1 @ 16		2 @ 11	1825	11846	3995	60859	5127	72910	5294	56600
38001	40000	1 @ 16		2 @ 12	110	714	239	3707	310	4408	321	3432
40001	42000	1 @ 16		2 @ 13	588	3816	1285	20211	1648	23435	1702	18197
BUSSES												
UNDER	5000	1 @ 2		1 @ 3	92		290		415		416	1054
5001	6000	1 @ 2		1 @ 4	23		75		104		106	338
6001	8000	1 @ 3		1 @ 5	112		338		469		479	3020
8001	10000	1 @ 4		1 @ 6	133		384		516		536	4003
10001	12000	1 @ 4		1 @ 8	137		382		502	2558	529	3951
12001	14000	1 @ 6		1 @ 8	143		390		500	2548	535	4576
14001	16000	1 @ 6		1 @ 10	101		265		338	1923	365	3122
16001	18000	1 @ 6		1 @ 12	172		442	2696	549	3123	601	5141
18001	20000	1 @ 6		1 @ 14	172		423	2689	525	2986	596	5098
20001	22000	1 @ 6		1 @ 16	57	370	134	853	184	1047	225	1925
22001	24000	1 @ 8		1 @ 16	72	467	133	846	196	2113	253	2164
24001	26000	1 @ 8		1 @ 18	948	6185	1593	10128	2292	24717	2593	22178
26001	28000	1 @ 10		1 @ 18	442	2884	879	5589	1187	4808	1188	10162
28001	30000	1 @ 12		1 @ 18	13	85	27	337	33	376	34	290
36001	38000	1 @ 6		2 @ 16	222	2162	508	4844	571	4872	572	6115
CUMULATED EFFECTIVE THOUSAND-POUND AXLE MILES						458213		1447266		2304096		2742986

*See text for calculations of effective Kip Axle Miles.

TABLE 5-4
(Continued)
DISTRIBUTION OF COSTS, PROPOSED STATE HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS	(1) WEIGHT COST 14-18 $ 7.187994 Per eff. KAM ($)	(2) WEIGHT COST 10-14 $14.318674 Per eff. KAM ($)	(3) WEIGHT COST 6-10 $27.642114 Per eff. KAM ($)	(4) WEIGHT COST 3-6 INCL. $44.064820 Per eff. KAM ($)	(5) TOTAL WEIGHT COST COL. 1+2+3+4 ($)	(6) ANNUAL AXLE MILES (X1000)	(7) BASIC STRUCTURE COST @ $66.666371 Per Axle Mile ($)	(8) ANNUAL VEHICLE MILES (X1000)	(9) ADMIN. COST @ $13.814658 Per Vehicle Mile ($)	(10) TOTAL COST COL. 5+7+9 ($)	(11) FEDERAL AID 39.958986% ($)	(12) REMAINING TOTAL COST COL. 10-11 ($)
PASSENGER CARS						2001500	133432742	1000750	13825019	147257761	58842708	88415053
COMMERCIAL TRUCKS												
UNDER 5000				3820905	3820905	69190	4612646	34595	477918	8911469	3560933	5350536
5001 6000				1333137	1333137	19158	1277194	9579	132331	2742662	1095940	1646722
6001 8000				7193009	7193009	52270	3484651	26135	361046	11038706	4410955	6627751
8001 10000			2114097	5014885	7128982	33664	2244257	16832	232528	9605767	3838367	5767400
10001 12000			1011314	2447272	3458586	14990	999329	7495	103541	4561456	1822712	2738745
12001 14000			710402	1552139	2262542	9520	634664	4760	65758	2962963	1183970	1778993
14001 16000		559574	1357587	2913654	4830815	17818	1187861	8909	123075	6141751	2454182	3687570
16001 18000		711925	1700653	3908770	6321348	22164	1477593	11082	153094	7952035	3177553	4774483
18001 20000	248029	1036085	2337638	5410896	9032648	30716	2047724	15358	212166	11292537	4512383	6780154
20001 22000	133855	1010225	2459319	6119987	9723386	32754	2183590	16377	226243	12133219	4848311	7284908
20001 22000			120879	232839	353718	1653	110200	551	7612	471529	188418	283111
22001 24000	52156	329458	1665935	2244750	4292300	11994	799596	5997	82847	5174742	2067775	3106968
22001 24000			36792	66494	103286	477	31200	159	2197	137282	54857	82425
24001 26000	42115	287047	1663337	2225538	4218035	11950	796663	5975	82543	5097241	2036806	3060435
24001 26000		25545	59209	108355	193109	774	51600	258	3564	248273	99208	149066
26001 28000	136651	1015223	2480548	3066383	6698804	16404	1093595	8202	113308	7905707	3159040	4746667
26001 28000		35381	79526	145634	260542	1035	69000	345	4766	334308	133586	200722
28001 30000		28838	64848	133340	227026	855	57000	285	3937	287963	115067	172896
30001 32000		80514	176882	361332	618727	2313	154199	771	10651	783578	313110	470468
32001 34000		134223	296711	609637	1040571	3906	260399	1302	17987	1318956	527042	791915
34001 36000		185026	653598	841418	1680041	5397	359798	1799	24853	2064692	825030	1239662
36001 38000	24367	126992	452032	582757	1186148	3741	249399	1247	17227	1452774	580514	872260
38001 40000	38140	218761	829485	1073683	2160068	6894	459598	2298	31746	2651412	1059478	1591935
40001 42000	384838	1752534	6527658	8007503	16672533	51291	3419385	17097	236189	20328107	8122905	12205202
FARM TRUCKS												
UNDER 5000				1362705	1362705	24882	1658793	12441	171868	3193365	1276036	1917329
5001 6000				1043367	1043367	15120	1007996	7560	104439	2155801	861436	1294365
6001 8000				2244662	2244662	16326	1088395	8163	112769	3445826	1376917	2068909
8001 10000			442661	1097743	1540404	7408	493865	3704	51170	2085438	833320	1252118
10001 12000			170718	438357	609075	2706	180399	1353	18691	808165	322935	485230
12001 14000			237888	551295	789183	3408	227199	1704	23540	1039922	415542	624380
14001 16000		277081	747968	1674551	2699600	10294	686264	5147	71104	3456968	1381369	2075598
16001 18000		431780	1407896	3468386	5308061	19668	1311194	9834	135853	6755109	2699273	4055836
18001 20000	56692	287218	843250	2082944	3270104	11926	795063	5963	82377	4147544	1657317	2490228
20001 22000	86960	441330	1100184	2833104	4461578	15214	1014262	7607	105088	5580928	2230082	3350846
22001 24000	80074	395195	1865235	2608814	4949318	13994	932929	6997	96661	5978908	2389111	3589797
24001 26000	34380	168230	844494	1104309	2151413	5888	392532	2944	40670	2584615	1032786	1551829
26001 28000	24389	234812	640910	774131	1674242	4124	274932	2062	28486	1977660	790253	1187407
TRACTOR TRUCKS												
12001 14000			26426	77334	103760	476	31733	238	3288	138781	55455	83325
14001 16000		30842	69354	169517	269714	970	64666	485	6700	341080	136292	204788
16001 18000		84337	177518	426239	688094	2432	162133	1216	16799	867025	346454	520571
18001 20000	42115	191441	393707	925846	1553108	5284	532265	2642	36498	1941871	775952	1165919
20001 22000	62147	284942	585709	1461586	2394384	7848	523198	3924	54209	2971790	1187497	1784293
22001 24000	59646	273744	1015903	1385090	2734383	7440	495998	3720	51391	3281771	1311363	1970409
24001 26000	68006	317345	1231401	1568972	3185723	8428	561864	4214	58215	3805803	1520760	2285042
26001 28000	90605	805153	1625799	2058576	4580133	11056	737063	5528	76367	5393564	2155213	3238350
32001 34000		42340	81848	185160	309349	1194	79600	398	5498	394447	157617	236830
34001 36000		915722	3002321	4117549	8035592	26547	1769792	8849	122246	9927630	3966980	5960650
36001 38000	14858	100918	350944	420687	887407	2709	180599	903	12475	1080481	431749	648731
38001 40000	50949	266556	1184879	1302644	2805028	8388	559198	2796	38626	3402852	1359745	2043107
40001 42000	161313	539657	2336920	3172931	6210821	20442	1362794	6814	94133	7667748	3063954	4603793

TABLE 5-4
(Continued)
DISTRIBUTION OF COSTS, PROPOSED STATE HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		(1) WEIGHT COST 14-18 $ 7.187994 Per eff. KAM ($)	(2) WEIGHT COST 10-18 $14.318674 Per eff. KAM ($)	(3) WEIGHT COST 6-10 $27.642114 Per eff. KAM ($)	(4) WEIGHT COST 3-6 INCL. $44.064820 Per eff. KAM ($)	(5) TOTAL WEIGHT COST COL. 1+2+3+4 ($)	(6) ANNUAL AXLE MILES (X1000)	(7) BASIC STRUCTURE COST @ $66.666371 Per Axle Mile ($)	(8) ANNUAL VEHICLE MILES (X1000)	(9) ADMIN. COST @ $13.814658 Per Vehicle Mile ($)	(10) TOTAL COST COL. 5+7+9 ($)	(11) FEDERAL AID 39.958986% ($)	(12) REMAINING TOTAL COST COL. 10-11 ($)
SEMI TRAILERS													
8001	10000			20593	26747	47341	143	9533	143	1976	58850	23516	35334
10001	12000		10395	22473	29039	61907	156	10400	156	2155	74462	29754	44708
12001	14000		80743	168562	216314	465619	1162	77466	1162	16053	559138	223426	335712
14001	16000	29536	122539	258343	330530	740948	1776	118400	1776	24535	883882	353190	530692
16001	18000	162636	693597	1470008	1879761	4206001	10097	673130	10097	139487	5018618	2005389	3013229
22001	24000		22409	69105	86764	178278	620	41333	310	4283	223893	89466	134428
24001	26000		35553	89616	113335	238504	812	54133	406	5609	298246	119176	179070
26001	28000		78796	180420	229798	489014	1644	109600	822	11356	609969	243737	366232
28001	30000	76078	340699	746475	952593	2115845	6820	454665	3410	47108	2617618	1045973	1571644
30001	32000	565688	2415360	5119679	6548297	14649023	46890	3125986	23445	323885	18098894	7232135	10866760
FULL TRAILERS													
UNDER	3000				284923	284923	2583	172199	2583	35683	492806	196920	295886
3001	4000				78347	78347	563	37533	563	7778	123658	49413	74246
4001	6000				150922	150922	811	54066	811	11204	216192	86388	129804
4001	6000				107518	107518	1300	86666	650	8980	203164	81182	121982
6001	8000			257625	355779	613404	1911	127399	1911	26400	767203	306567	460637
8001	10000			133180	164494	297674	882	58800	882	12185	368658	147312	221346
10001	12000		35997	106616	131886	274499	708	47200	708	9781	331480	132456	199024
28001	30000	4385	38975	83037	102891	229288	552	36800	276	3813	269901	107850	162051
30001	32000	47225	201750	446862	553630	1249468	2972	198133	1486	20529	1468129	586650	881480
32001	34000	29277	117986	275481	341502	764246	1834	122266	917	12668	899180	359303	539877
34001	36000	281460	1195309	2649441	3278599	7404809	17608	1173862	8804	121624	8700295	3476550	5223745
34001	36000		92270	213452	264786	570507	1704	113600	568	7847	691954	276498	415456
36001	38000	85149	871420	2015387	2494069	5466024	16071	1071395	5357	74005	6611425	2641858	3969566
38001	40000	5132	53079	121846	151231	331288	972	64800	324	4476	400564	160061	240503
40001	42000	27429	289395	647793	801848	1766465	5166	344399	1722	23789	2134652	852985	1281667
BUSSES													
UNDER	5000				46444	46444	836	55733	418	5775	107952	43137	64815
5001	6000				14894	14894	216	14400	108	1492	30786	12302	18484
6001	8000				133076	133076	960	64000	480	6631	203707	81399	122307
8001	10000				176392	176392	1078	71866	539	7446	255704	102177	153527
10001	12000			70709	174100	244809	1064	70933	532	7349	323091	129104	193987
12001	14000			70432	201641	272073	1076	71733	538	7432	351238	140351	210887
14001	16000			53156	137570	190726	732	48800	366	5056	244582	97733	146850
16001	18000		38603	86326	226537	351467	1206	80400	603	8330	440196	175898	264298
18001	20000		38503	82539	224643	345685	1202	80133	601	8303	434120	173470	260650
20001	22000	2660	12214	28941	84825	128640	452	30133	226	3122	161895	64692	97203
22001	24000	3357	12114	58408	95356	169235	510	34000	255	3523	206757	82618	124139
24001	26000	44458	145020	683230	977270	1849977	5208	347199	2604	35973	2233149	892344	1340805
26001	28000	20730	80027	132903	447787	681447	2386	159066	1193	16481	856994	342446	514548
28001	30000	611	4825	10393	12779	28609	72	4800	36	497	33906	13549	20357
36001	38000	15540	69360	134672	269456	489029	1755	117000	585	8082	614110	245392	368718
GRAND TOTAL		3293633	20722930	63690085	120869185	208575832	2821110	188073166	1393737	19254000	415902998	166190621	249712377

TABLE 5-5

INCREMENTAL DISTRIBUTION PROPOSED SECONDARY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS	NO. OF AXLES IN GROUP & AV. MAXIMUM LOAD FRONT	INTER	REAR	ANNUAL VEHICLE MILES (X1000) 1000+ VPD	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $11.265518 10-14	ANNUAL VEHICLE MILES (X1000) 400+ VPD	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $18.260093 6-10	ANNUAL VEHICLE MILES (X1000) 200+ VPD	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $23.188787 3-6 Incl.
PASSENGER CARS	1 @ 2		1 @ 2	47405		107693		189878	
COMMERCIAL TRUCKS									
UNDER 5000	1 @ 2		1 @ 3	1439		4565		7664	19419
5001 6000	1 @ 2		1 @ 4	397		1169		1965	6273
6001 8000	1 @ 3		1 @ 5	1249		2736		3834	24172
8001 10000	1 @ 3		1 @ 7	801		2166	10217	3704	25226
10001 12000	1 @ 4		1 @ 8	429		942	4800	1903	14214
12001 14000	1 @ 4		1 @ 10	246		600	3413	1402	10471
14001 16000	1 @ 4		1 @ 12	409	2495	1060	6030	2166	16178
16001 18000	1 @ 5		1 @ 13	409	2555	1212	6894	2948	23723
18001 20000	1 @ 5		1 @ 15	702	4463	1710	9727	3321	26725
20001 22000	1 @ 6		1 @ 16	933	5932	2308	13129	3684	31510
20001 22000	1 @ 4		2 @ 9	21		67	545	113	1086
22001 24000	1 @ 7		1 @ 17	257	1634	880	9157	1830	15652
22001 24000	1 @ 4		2 @ 10	5		22	188	39	375
24001 26000	1 @ 8		1 @ 18	260	1653	809	8724	1203	10289
24001 26000	1 @ 4		2 @ 11	8	72	34	290	63	606
26001 28000	1 @ 13		1 @ 15	331	4173	1031	11730	1649	14104
26001 28000	1 @ 4		2 @ 12	9	83	40	341	82	788
28001 30000	1 @ 6		2 @ 12	8	73	30	256	65	695
30001 32000	1 @ 6		2 @ 13	25	203	66	563	161	1721
32001 34000	1 @ 6		2 @ 14	42	400	104	887	252	2694
34001 36000	1 @ 8		2 @ 14	63	601	142	1935	332	3550
36001 38000	1 @ 8		2 @ 15	42	400	104	1417	252	2694
38001 40000	1 @ 8		2 @ 16	76	725	241	3284	376	4020
40001 42000	1 @ 10		2 @ 16	535	5102	1589	22597	1731	18507
FARM TRUCKS									
UNDER 5000	1 @ 2		1 @ 3	932		2680		5705	14455
5001 6000	1 @ 2		1 @ 4	566		1629		3468	11071
6001 8000	1 @ 3		1 @ 5	708		1870		3936	24814
8001 10000	1 @ 3		1 @ 7	328		894	4217	1969	13409
10001 12000	1 @ 4		1 @ 8	118		338	1722	763	5698
12001 14000	1 @ 4		1 @ 10	165		472	2685	1006	7514
14001 16000	1 @ 4		1 @ 12	492	3001	1368	7782	2707	20218
16001 18000	1 @ 5		1 @ 13	945	5903	2443	13896	5218	41991
18001 20000	1 @ 5		1 @ 15	1227	7801	3470	19738	7517	60491
20001 22000	1 @ 6		1 @ 16	800	5086	3511	19972	8284	70854
22001 24000	1 @ 7		1 @ 17	529	3363	2274	23661	5813	49720
24001 26000	1 @ 8		1 @ 18	284	1806	837	9026	2121	18142
26001 28000	1 @ 13		1 @ 15	235	2962	523	5950	1326	11341
TRACTOR TRUCKS									
12001 14000	1 @ 4		1 @ 10	2		12	68	116	867
14001 16000	1 @ 5		1 @ 11	2	12	20	114	83	668
16001 18000	1 @ 5		1 @ 13	6	38	49	279	165	1328
18001 20000	1 @ 5		1 @ 15	14	90	105	597	329	2648
20001 22000	1 @ 6		1 @ 16	20	127	153	870	455	3892
22001 24000	1 @ 7		1 @ 17	20	127	147	1530	420	3593
24001 26000	1 @ 8		1 @ 18	23	146	168	1812	477	4080
26001 28000	1 @ 13		1 @ 15	29	366	194	2208	723	6184
32001 34000	1 @ 6		2 @ 14	3	28	11	94	28	299
34001 36000	1 @ 8		2 @ 14	43	410	262	3570	758	8104
36001 38000	1 @ 8		2 @ 15	6	57	28	381	35	374
38001 40000	1 @ 8		2 @ 16	15	143	148	2016	205	2192
40001 42000	1 @ 10		2 @ 16	20	190	367	5219	659	7046

*See text for calculations of effective Kip Axle Miles.

TABLE 5-5
(Continued)
INCREMENTAL DISTRIBUTION PROPOSED SECONDAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS	NO. OF AXLES IN GROUP & AV. MAXIMUM LOAD			ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $11.265518	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE KIP AXLE MILES (X1000) @ $18.260093	ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $23.188787
	FRONT	INTER	REAR	1000+ VPD	10-14	400+ VPD	6-10	200+ VPD	3-6 Incl.
SEMI TRAILERS									
8001 10000			1 @ 10	2		8	46	19	81
10001 12000			1 @ 12	2	12	8	46	19	81
12001 14000			1 @ 14	9	57	54	307	127	543
14001 16000			1 @ 16	14	90	80	455	188	804
16001 18000			1 @ 18	74	470	451	2565	1049	4486
22001 24000			2 @ 12	2	18	9	77	25	160
24001 25000			2 @ 13	2	18	14	119	40	257
26001 28000			2 @ 14	3	28	29	247	82	526
28001 30000			2 @ 15	12	115	125	1067	360	2309
30001 32000			2 @ 16	83	791	886	7560	2544	16319
FULL TRAILERS									
UNDER 3000		1 @ 3		89		268		357	905
3001 4000		1 @ 4		19		58		78	249
4001 6000		1 @ 6		14		84		112	479
4001 6000		2 @ 3		9		58		95	361
6001 8000		1 @ 8		2		72	367	134	573
8001 10000		1 @ 10		2		31	176	59	253
10001 12000		1 @ 12		2	12	25	142	48	205
28001 30000	1 @ 14		1 @ 16	5	32	8	92	22	188
30001 32000	1 @ 16		1 @ 16	22	140	43	490	122	1044
32001 34000	1 @ 16		1 @ 18	14	90	26	296	76	650
34001 36000	1 @ 18		1 @ 18	130	826	258	2936	724	6192
34001 36000	1 @ 14		2 @ 11			9	128	65	695
36001 38000	1 @ 16		2 @ 11						
38001 40000	1 @ 16		2 @ 12						
40001 42000	1 @ 16		2 @ 13						
BUSSES									
UNDER 5000	1 @ 2		1 @ 3	14		97		212	537
5001 6000	1 @ 2		1 @ 4	3		25		56	179
6001 8000	1 @ 3		1 @ 5	16		114		249	1570
8001 10000	1 @ 4		1 @ 6	17		129		284	2121
10001 12000	1 @ 4		1 @ 8	17		129	658	282	2106
12001 14000	1 @ 6		1 @ 8	19		133	678	290	2480
14001 16000	1 @ 6		1 @ 10	12		92	523	200	1711
16001 18000	1 @ 6		1 @ 12	21	128	153	870	329	2814
18001 20000	1 @ 6		1 @ 14	4	25	11	63	21	180
20001 22000	1 @ 6		1 @ 16	1	7	4	23	7	60
22001 24000	1 @ 8		1 @ 16	1	7	4	43	9	77
24001 26000	1 @ 8		1 @ 18	16	102	57	614	97	829
26001 28000	1 @ 10		1 @ 18	9	57	26	296	46	394
28001 30000	1 @ 12		1 @ 18			1	12	1	8
36001 38000	1 @ 6		1 @ 16						
CUMULATED EFFECTIVE THOUSAND-POUND AXLE MILES					65245		264427		718111

*See text for calculations of effective Kip Axle Miles.

TABLE 5-5
(Continued)
DISTRIBUTION OF COSTS, PROPOSED SECONDARY HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS	(1) WEIGHT COST @ $11.265518 ($)	(2) WEIGHT COST @ $18.260093 ($)	(3) WEIGHT COST @ $23.188787 ($)	(4) TOTAL WEIGHT COST COL.1+2+3 ($)	(5) ANNUAL AXLE MILES (X1000)	(6) BASIC STRUCTURE COST @ $259.417644 ($)	(7) ANNUAL VEHICLE MILES (X1000)	(8) ADMIN. COST @ $18.775314 Per Vehicle Mile ($)	(9) TOTAL COST COL. 4+6+8 ($)	(10) FEDERAL AID 36.752190% ($)	(11) REMAINING TOTAL COST COL.9-10 ($)
PASSENGER CARS					628842	163132711	314421	5903353	169036064	62124455	106911609
COMMERCIAL TRUCKS											
UNDER 5000			450303	450303	22196	5758034	11098	208368	6416706	2358280	4058426
5001 6000			145463	145463	5686	1475049	2843	53378	1673890	615191	1058699
6001 8000			560519	560519	13812	3583077	6906	129662	4273258	1570516	2702742
8001 10000		186563	584960	771524	10618	2754497	5309	99678	3625698	1332524	2293175
10001 12000		87648	329605	417254	5640	1463116	2820	52946	1933316	710536	1222780
12001 14000		62322	242810	305132	4032	1045972	2016	37851	1388954	510471	878483
14001 16000	28108	110108	375148	513364	6690	1735504	3345	62803	3211672	849590	1462082
16001 18000	28783	125885	550108	704776	8516	2209201	4258	79945	2993922	1100332	1893590
18001 20000	50278	177616	619720	847614	10070	2612336	5035	94534	3554484	1306351	2248133
20001 22000	66827	239737	730679	1037243	11288	2928306	5644	105968	4071517	1496372	2575145
20001 22000		9952	25183	35135	519	134638	173	3248	173021	63589	109432
22001 24000	18408	167208	362951	548567	5560	1442362	2780	52195	2043124	750893	1292231
22001 24000		3433	8696	12129	168	43582	56	1051	56762	20861	35901
24001 26000	18622	159301	238589	416512	3856	1000314	1928	36199	1453026	534019	919007
24001 26000	811	5295	14052	20158	285	73934	95	1784	95877	35237	60640
26001 28000	47011	214191	327055	588257	5030	1304871	2515	47220	1940347	713120	1227227
26001 28000	935	6227	18273	25435	363	94169	121	2272	121875	44792	77083
28001 30000	822	4675	16116	21613	285	73934	95	1784	97331	35771	61560
30001 32000	2287	10280	39908	52475	723	187559	241	4525	244559	89881	154678
32001 34000	4506	16197	62471	83174	1218	315971	406	7623	406767	149496	257271
34001 36000	6771	35333	82320	124424	1485	385235	495	9294	518953	190727	328227
36001 38000	4506	25875	62471	92851	1218	315971	406	7623	416445	153053	263392
38001 40000	8168	59966	93219	161353	1338	347101	446	8374	516827	189945	326882
40001 42000	57477	412623	429155	899255	5568	1444437	1856	34847	2378539	874165	1504374
FARM TRUCKS											
UNDER 5000			335194	335194	26706	6928008	13353	250707	7513908	2761526	4752382
5001 6000			256723	256723	16232	4210867	8116	152380	4619971	1697940	2922030
6001 8000			575407	575407	15718	4077527	7859	147555	4800488	1764285	3036204
8001 10000		77003	310938	387941	6776	1757814	3388	63611	2209366	811990	1397376
10001 12000		31444	132130	163574	2518	653214	1259	23638	840425	308875	531551
12001 14000		49028	174241	223269	3270	848296	1635	30698	1102262	405106	697157
14001 16000	33808	142100	468831	744739	10252	2659550	5126	96242	3400530	1249770	2150761
16001 18000	66500	253742	973720	1293963	19272	4999497	9636	180919	6474379	2379477	4094903
18001 20000	87882	360418	1402713	1851013	31042	8052843	15521	291412	10195267	3746984	6448283
20001 22000	57296	364691	1643018	2065005	33962	8810342	16981	318824	11194171	4114103	7080068
22001 24000	37886	432052	1152947	1622885	23636	6131595	11818	221887	7976367	2931489	5044877
24001 26000	20346	164816	420691	605852	8600	2230992	4300	80734	2917578	1072274	1845304
26001 28000	33369	108647	262984	405000	5346	1386847	2673	50186	1842033	676988	1165046
TRACTOR TRUCKS											
12001 14000		1242	20105	21346	308	59901	154	2891	104138	38273	65865
14001 16000	135	2082	15490	17707	220	57072	111	2084	76863	28249	48614
16001 18000	428	5095	30795	36317	438	113625	219	4112	154054	56618	97436
18001 20000	1014	10901	61404	73319	860	223099	430	8073	304492	111907	192584
20001 22000	1431	15886	90251	107568	1186	307669	593	11134	426371	156701	269670
22001 24000	1431	27938	83317	112686	1092	283284	546	10251	406221	149295	256926
24001 26000	1645	33087	94610	129342	1252	324791	626	11753	465887	171224	294663
26001 28000	4123	40318	143400	187841	1978	513128	989	18569	719538	264446	455092
32001 34000	315	1716	6933	8965	105	27239	35	657	36861	13547	23314
34001 36000	4619	65189	187922	257729	2436	631941	812	15246	904916	332577	572340
36001 38000	642	6957	8673	16272	144	37356	48	901	54529	20041	34489
38001 40000	1611	36812	50830	89253	717	186003	239	4487	279743	102811	176931
40001 42000	2140	95299	163388	260828	2463	638946	821	15415	915188	336352	578837

TABLE 5-5
(Continued)
DISTRIBUTION OF COSTS, PROPOSED SECONDARY HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS	(1) WEIGHT COST @ $11.265518 ($)	(2) WEIGHT COST @ $18.260093 ($)	(3) WEIGHT COST @ $23.188787 ($)	(4) TOTAL WEIGHT COST COL. 1+2+3 ($)	(5) ANNUAL AXLE MILES (X1000)	(6) BASIC STRUCTURE COST @ $259.417644 ($)	(7) ANNUAL VEHICLE MILES (X1000)	(8) ADMIN. COST $18.775314 ($)	(9) TOTAL COST COL. 4+6+8 ($)	(10) FEDERAL AID 36.752190% ($)	(11) REMAINING TOTAL COST COL. 9-10 ($)
SEMI TRAILERS											
8001 10000		840	1878	2718	28	7264	28	526	10508	3862	6646
10001 12000	135	840	1878	2854	28	7264	28	526	10643	3912	6734
12001 14000	642	5606	12592	18839	198	51365	198	3718	73922	27168	46754
14001 16000	1014	8308	18644	27966	293	76009	293	5501	109477	40235	69242
16001 18000	5295	46837	104025	156157	642	166546	1642	30829	353532	129931	223601
22001 24000	203	1406	3710	5319	56	14527	28	526	20372	7487	12885
24001 26000	203	2173	5960	8335	90	23348	45	845	32528	11955	20573
26001 28000	315	4510	12197	17023	186	48252	93	1746	67021	24632	42389
28001 30000	1296	19484	53543	74322	812	210647	406	7623	292592	107534	185058
30001 32000	8911	138046	378418	525375	5724	1484906	2862	53735	2064017	758571	1305445
FULL TRAILERS											
UNDER 3000			20986	20986	446	115700	446	8374	145060	53312	91747
3001 4000			5774	5774	97	25164	97	1821	32759	12040	20719
4001 6000			11107	11107	140	36319	140	2629	50054	18396	31658
4001 6000			8371	8371	228	59147	114	2140	69659	25601	44058
6001 8000		6702	13287	19989	408	105842	408	7660	133491	49061	84430
8001 10000		3214	5867	9081	181	46955	181	3398	59434	21843	37590
10001 12000	135	2593	4754	7482	148	38394	148	2779	48654	17882	30773
28001 30000	361	1680	4360	6400	58	15046	29	545	21991	8082	13909
30001 32000	1577	8947	24209	34734	320	83014	160	3004	120751	44379	76373
32001 34000	1014	5405	15073	21492	198	51365	99	1859	74715	27459	47256
34001 36000	9305	53612	143585	206502	1904	493931	952	17874	718307	263994	454314
34001 36000		2337	16112	18453	195	50586	65	1220	70260	25822	44438
BUSSES											
UNDER 5000			12452	12452	902	233995	451	8468	254915	93687	161228
5001 6000			4151	4151	236	61223	118	2216	67589	24840	42749
6001 8000			36406	36406	1058	274464	529	9932	320802	117902	202900
8001 10000			49183	49183	1206	312858	603	11322	373363	137219	236144
10001 12000		12015	48836	60851	1198	310782	599	11246	382879	140717	242163
12001 14000		12380	57508	69889	1232	319603	616	11566	401057	147397	253660
14001 16000		9550	39676	49226	844	218949	422	7923	276098	101472	174626
16001 18000	1442	15886	65253	82582	1402	363704	701	13162	459447	168857	290590
18001 20000	282	1150	4174	5606	42	10896	21	394	16896	6210	10686
20001 22000	79	420	1391	1890	14	3632	7	131	5653	2078	3576
22001 24000	79	785	1786	2650	18	4670	9	169	7488	2752	4736
24001 26000	1149	11212	19224	31584	194	50327	97	1821	83733	30774	52959
26001 28000	642	5405	9136	15184	92	23866	46	864	39914	14669	25245
28001 30000		219	186	405	2	519	1	19	942	346	596
GRAND TOTAL	3673	69023	349362	422058	8440	2189485	4220	79232	2690775	988919	1701856

TABLE 5-6

INCREMENTAL DISTRIBUTION PROPOSED INTERSTATE SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		NO. OF AXLES IN GROUP & AV. MAXIMUM LOAD			ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $11.453597	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $13.310367	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $17.004767	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $24.216350
		FRONT	INTER	REAR	All Incr.	14-18	10-14	6-10	3-6 Inc.
PASSENGER CARS		1@ 2		1@ 2	700381				
COMMERCIAL TRUCKS									
UNDER	5000	1@ 2		1@ 3	21909				55513
5001	6000	1@ 2		1@ 4	6066				19365
6001	8000	1@ 3		1@ 5	14149				89203
8001	10000	1@ 3		1@ 7	10196			48094	69438
10001	12000	1@ 4		1@ 8	3973			20245	29674
12001	14000	1@ 4		1@10	2631			14966	19651
14001	16000	1@ 4		1@12	6324		38580	35973	47233
16001	18000	1@ 5		1@13	9152		57173	52059	73649
18001	20000	1@ 5		1@15	11539	74286	73363	65637	92858
20001	22000	1@ 6		1@16	7265	47157	46189	41325	62138
20001	22000	1@ 4		2@ 9	403			3275	3872
22001	24000	1@ 7		1@17	2691	17541	17109	28000	23016
22001	24000	1@ 4		2@10	136			1160	1306
24001	26000	1@ 8		1@18	2239	14607	14235	24145	19151
24001	26000	1@ 4		2@11	221		1961	1886	2123
26001	28000	1@13		1@15	6222	40056	78427	70784	53218
26001	28000	1@ 4		2@12	285		2608	2432	2738
28001	30000	1@ 6		2@12	225		2059	1920	2406
30001	32000	1@ 6		2@13	575		5389	4906	6148
32001	34000	1@ 6		2@14	882		8411	7526	9430
34001	36000	1@ 8		2@14	1204		11483	16408	12872
36001	38000	1@ 8		2@15	796	7686	7591	10848	8510
38001	40000	1@ 8		2@16	1272	12384	12131	17335	13599
40001	42000	1@10		2@16	12077	117586	115175	171743	129120
FARM TRUCKS									
UNDER	5000	1@ 2		1@ 3	7683				19467
5001	6000	1@ 2		1@ 4	4670				14908
6001	8000	1@ 3		1@ 5	4988				35660
8001	10000	1@ 3		1@ 7	2217			10457	15099
10001	12000	1@ 4		1@ 8	688			3506	5139
12001	14000	1@ 4		1@10	921			5239	6879
14001	16000	1@ 4		1@12	2792		17033	15882	20853
16001	18000	1@ 5		1@13	4346		27149	24721	34973
18001	20000	1@ 5		1@15	2790	17961	17738	15870	22452
20001	22000	1@ 6		1@16	4219	27386	26824	23999	36085
22001	24000	1@ 7		1@17	3854	25123	24503	40102	32964
24001	26000	1@ 8		1@18	1650	10764	10490	17794	14113
26001	28000	1@13		1@15	820	5279	10336	9328	7014
TRACTOR TRUCKS									
12001	14000	1@ 4		1@10	160			910	1195
14001	16000	1@ 5		1@11	362		2142	2059	2913
16001	18000	1@ 5		1@13	900		5623	5119	7243
18001	20000	1@ 5		1@15	1990	12812	12652	11320	16014
20001	22000	1@ 6		1@16	2920	18954	18565	16610	24976
22001	24000	1@ 7		1@17	2793	18205	17758	29062	23888
24001	26000	1@ 8		1@18	3194	20839	20307	34443	27319
26001	28000	1@13		1@15	4263	27444	53735	48498	36462
32001	34000	1@ 6		2@14	301		2870	2568	3218
34001	36000	1@ 8		2@14	6932		66109	94469	74113
36001	38000	1@ 8		2@15	517	4992	4931	7045	5527
38001	40000	1@ 8		2@16	1659	16152	15821	22609	17737
40001	42000	1@10		2@16	4787	46608	45653	68075	51180

*See text for calculations of effective Kip Axle Miles.

TABLE 5-6
(Continued)
INCREMENTAL DISTRIBUTION PROPOSED INTERSTATE SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		NO. OF AXLES IN GROUP & AV. MAXIMUM LOAD			ANNUAL VEHICLE MILES (X1000)	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $11.453597	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $13.310367	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $17.004767	ANNUAL EFFECTIVE* KIP AXLE MILES (X1000) @ $24.216350
		FRONT	INTER	REAR	All Incr.	14-18	10-14	6-10	3-6 **Incl.**
SEMI TRAILERS									
8001	10000			1@10	153			870	655
10001	12000			1@12	138		842	785	590
12001	14000			1@14	936		5951	5324	4003
14001	16000			1@16	1362	8840	8659	7747	5825
16001	18000			1@18	7497	48911	47664	42645	32061
22001	24000			2@12	83		760	708	532
24001	26000			2@13	213		1996	1817	1366
26001	28000			2@14	526		5016	4488	3374
28001	30000			2@15	2393	23109	22821	20418	15350
30001	32000			2@16	17477	170162	166674	149121	112112
FULL TRAILERS									
UNDER	3000		1@ 3		1908				4835
3001	4000		1@ 4		414				1322
4001	6000		1@ 6		598				2557
4001	6000		2@ 3		494				1877
6001	8000		1@ 8		1412			6426	6038
8001	10000		1@10		583			3316	2493
10001	12000		1@12		493		3007	2804	2108
28001	30000	1@14		1@16	207	1344	2632	2354	1770
30001	32000	1@16		1@16	1096	14227	13936	12468	9374
32001	34000	1@16		1@18	677	8811	8607	7702	5790
34001	36000	1@18		1@18	6498	84787	82628	73924	55578
34001	36000	1@14		2@11	415		6323	5902	4437
36001	38000	1@16		2@11	3955	25672	60249	56243	42284
38001	40000	1@16		2@12	239	1352	3707	3398	2555
40001	42000	1@16		2@13	1272	8256	20008	18088	13599
BUSSES									
UNDER	5000	1@ 2		1@ 3	218				552
5001	6000	1@ 2		1@ 4	57				182
6001	8000	1@ 3		1@ 5	263				1658
8001	10000	1@ 4		1@ 6	311				2323
10001	12000	1@ 4		1@ 8	314			1600	2345
12001	14000	1@ 6		1@ 8	328			1671	2806
14001	16000	1@ 6		1@10	226			1286	1933
16001	18000	1@ 6		1@12	385		2348	2190	3293
18001	20000	1@ 6		1@14	382		2429	2173	3268
20001	22000	1@ 6		1@16	126	818	801	717	1078
22001	24000	1@ 8		1@16	148	960	941	1596	1266
24001	26000	1@ 8		1@18	1956	12762	12436	21093	16730
26001	28000	1@10		1@18	941	6140	5982	10706	8048
28001	30000	1@12		1@18	26	169	324	296	222
36001	38000	1@ 6		2@16	482	4693	4596	4113	5153
CUMULATED EFFECTIVE THOUSAND-POUND AXLE MILES						1004835	1383460	1624341	1786964

*See text for calculations of effective Kip Axle Miles.

TABLE 5-6
(Continued)
DISTRIBUTION OF COST, PROPOSED INTERSTATE HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		(1) WEIGHT COST @ $11.453597 Per Eff. KAM ($)	(2) WEIGHT COST @ $13.310367 Per Eff. KAM ($)	(3) WEIGHT COST @ $17.004767 Per Eff. KAM ($)	(4) WEIGHT COST @ $24.216350 Per Eff. KAM ($)	(5) TOTAL WEIGHT COST Co. 1+2+3+4 ($)	(6) ANNUAL AXLE MILES (X1000)	(7) BASIC STRUCTURE COST @ $67.001648 Per Axle Mile ($)	(8) ANNUAL VEHICLE MILES (X1000)	(9) ADMIN. COST @ $20,102244 Per Vehicle Mile ($)	(10) TOTAL COST Col. 5+7+9 ($)	(11) FEDERAL AID 76.330558 % ($)	(12) REMAINING TOTAL COST Col. 10-11 ($)
PASSENGER CARS							1400762	93853362	700381	14079230	107932592	82385550	25547042
COMMERCIAL TRUCKS													
UNDER	5000				1344322	1344322	43818	2935878	21909	440420	4720621	3603276	1117345
5001	6000				468950	468950	12132	812864	6066	121940	1403754	1071493	332261
6001	8000				2160171	2160171	28298	1896013	14149	284427	4340610	3313212	1027398
8001	10000			817827	1681535	2499362	20392	1366298	10196	204962	4070622	3107129	963494
10001	12000			344262	718596	1062857	7946	532395	3973	79866	1675119	1278628	396491
12001	14000			254493	475875	730369	5262	352563	2631	52889	1135821	866978	268842
14001	16000		513514	611712	1143811	2269037	12648	847437	6324	127127	3243601	2475859	767742
16001	18000		760994	885251	1783510	3429755	18304	1226398	9152	183976	4840129	3694497	1145631
18001	20000	850842	976488	1116142	2248682	5192154	23078	1546264	11539	231960	6970378	5320528	1649850
20001	22000	540117	614793	702722	1504756	3362387	14530	973534	7265	146043	4481964	3421108	1060856
20001	22000(T)			55691	93766	149456	1209	81005	403	8101	238563	182096	56466
22001	24000	200908	227727	476133	557364	1462132	5382	360603	2691	54095	1876830	1432595	444235
22001	24000(T)			19726	31627	51352	408	27337	136	2734	81423	62150	19272
24001	26000	167303	189473	410580	463767	1231123	4478	300033	2239	45009	1576165	1203096	373070
24001	26000(T)		26102	32071	51411	109584	663	44422	221	4443	158449	120945	37504
26001	28000	458785	1043892	1203665	1288746	3995089	12444	833769	6222	125076	4953933	3781365	1172568
26001	28000(T)		34713	41356	66304	142373	855	57286	285	5729	205389	156775	48614
28001	30000(T)		27406	32649	58265	118320	675	45226	225	4523	168069	128288	39781
30001	32000(T)		71730	83425	148882	304037	1725	115578	575	11559	431174	329117	102056
32001	34000(T)		111954	127978	228360	468292	2646	177286	882	17730	663308	506307	157001
34001	36000(T)		152843	279014	311713	743570	3612	242010	1204	24203	1009783	770773	239010
36001	38000(T)	88032	101039	184468	206081	579620	2388	160000	796	16001	755622	576770	178851
38001	40000(T)	141841	161468	294778	329318	927405	3816	255678	1272	25570	1208654	922572	286082
40001	42000(T)	1346783	1533022	2920450	3126815	8927069	36231	2427537	12077	242775	11597381	8852345	2745035
FARM TRUCKS													
UNDER	5000				471420	471420	15366	1029547	7683	154446	1655413	1263586	391827
5001	6000				361017	361017	9340	625795	4670	93877	1080690	824897	255793
6001	8000				863555	863555	9976	668408	4988	100270	1632233	1245893	386341
8001	10000			177819	365643	543462	4434	297085	2217	44567	885114	675612	209501
10001	12000			59619	124448	184067	1376	92194	688	13830	290091	221428	68663
12001	14000			89088	166584	255672	1842	123417	921	18514	397603	303493	94111
14001	16000		226715	270070	504984	1001769	5584	374137	2792	56125	1432031	1093078	338954
16001	18000		361363	420375	846918	1628656	8692	582378	4346	87364	2298399	1754381	544018
18001	20000	205718	236099	269866	543705	1255388	5580	373869	2790	56085	1685343	1286432	398911
20001	22000	313668	357037	408097	873847	1952650	8438	565360	4219	84811	2602821	1986748	616073
22001	24000	287749	326144	681925	798268	2094086	7708	516449	3854	77474	2688008	2051772	636237
24001	26000	123287	139626	302583	341765	907260	3300	221105	1650	33169	1161535	886606	274929
26001	28000	60464	137576	158620	169853	526513	1640	109883	820	16484	652880	498347	154533
TRACTOR TRUCKS													
12001	14000			15474	28939	44413	320	21441	160	3216	69070	52721	16348
14001	16000		28511	35013	70542	134066	724	48509	362	7277	189852	144915	44937
16001	18000		74844	87047	175399	337291	1800	120601	900	18092	475986	363322	112663
18001	20000	146743	168403	192494	387801	895441	3980	266667	1990	40003	1202111	917578	284533
20001	22000	217091	247107	282449	604828	1351475	5840	391290	2920	58699	1801463	1375067	426396
22001	24000	208513	236366	494193	578480	1517551	5586	374271	2793	56146	1947968	1486895	461073
24001	26000	238682	270294	585695	661566	1756237	6388	428007	3194	64207	2248450	1716254	532196
26001	28000	314333	715233	824697	882977	2737239	8526	571256	4263	85696	3394191	2590805	803386
32001	34000(T)		38201	43668	77928	159797	903	60502	301	6051	226350	172775	53576
34001	36000(T)		879935	1606423	1794746	4281105	20796	1393366	6932	139349	5813820	4437721	1376099
36001	38000(T)	57176	65633	119799	133844	376452	1551	103920	517	10393	490765	374603	116161
38001	40000(T)	184999	210583	384461	429525	1209568	4977	333467	1659	33350	1576385	1203263	373121
40001	42000(T)	533829	607658	1157600	1239393	3538480	14361	962211	4787	96229	4596920	3508855	1088065

TABLE 5-6
(Continued)
DISTRIBUTION OF COST, PROPOSED INTERSTATE HIGHWAY SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		(1) WEIGHT COST @ $11.453597 Per Eff. KAM ($)	(2) WEIGHT COST @ $13.310367 Per Eff. KAM ($)	(3) WEIGHT COST @ $17.004767 Per Eff. KAM ($)	(4) WEIGHT COST @ $24.216350 Per Eff. KAM ($)	(5) TOTAL WEIGHT COST Col. 1+2+3+4 ($)	(6) ANNUAL AXLE MILES (X1000)	(7) BASIC STRUCTURE COST @ $67.001648 Per Axle Mile ($)	(8) ANNUAL VEHICLE MILES (X1000)	(9) ADMIN. COST @ $20.102244 Per Vehicle Mile ($)	(10) TOTAL COST Col. 5+7+9 ($)	(11) FEDERAL AID 76.330558 % ($)	(12) REMAINING TOTAL COST Col. 10-11 ($)
SEMI TRAILERS													
8001	10000			14794	15862	30656	153	10251	153	3076	43983	33572	10410
10001	12000		11207	13349	14288	38844	138	9246	138	2774	50864	38825	12039
12001	14000		79210	90533	96938	266681	936	62714	936	18816	348211	265791	82420
14001	16000	101250	115254	131736	141060	489300	1362	91256	1362	27379	607936	464041	143895
16001	18000	560207	634425	725168	776400	2696201	7497	502311	7497	150707	3349219	2556477	792741
22001	24000(T)		10116	12039	12883	35038	166	11122	83	1668	47829	36508	11321
24001	26000(T)		26567	30898	33080	90545	426	28543	213	4282	123369	94168	29201
26001	28000(T)		66765	76317	81706	224788	1052	70486	526	10574	305848	233455	72392
28001	30000(T)	264681	303756	347203	371721	1287361	4786	320670	2393	48105	1656136	1264138	391998
30001	32000(T)	1948967	2218492	2535768	2714943	9418170	34954	2341976	17477	351327	12111473	9244755	2866718
FULL TRAILERS													
UNDER	3000				117086	117086	1908	127839	1908	38355	283280	216229	67051
3001	4000				32014	32014	414	27739	414	8322	68075	51962	16113
4001	6000				61921	61921	598	40067	598	12021	114009	87024	26985
4001	6000(T)				45454	45454	988	66198	494	9931	121582	92804	28778
6001	8000			109273	146218	255491	1412	94606	1412	28384	378482	288897	89584
8001	10000			56388	60371	116759	583	39062	583	11720	167541	127885	39656
10001	12000		40024	47681	51048	138754	493	33032	493	9910	181696	138690	43006
28001	30000	15394	35033	40029	42863	133319	414	27739	207	4161	165219	126112	39106
30001	32000	162950	185493	212015	227004	787463	2192	146868	1096	22032	956363	729997	226366
32001	34000	100918	114562	130971	140213	486663	1354	90720	677	13609	590993	451108	139885
34001	36000	971116	1099809	1257060	1345896	4673882	12996	870753	6498	130624	5675260	4331957	1343302
34001	36000(T)		84161	100362	107448	291972	1245	83417	415	8342	383731	292904	90827
36001	38000(T)	294037	801936	956399	1023964	3076336	11865	794975	3955	79504	3950815	3015679	935136
38001	40000(T)	15485	49342	57782	61873	184482	717	48040	239	4804	237326	181153	56174
40001	42000(T)	94561	266314	307582	329318	997775	3816	255678	1272	25570	1279023	976286	302738
BUSSES													
UNDER	5000				13367	13367	436	29213	218	4382	46962	35847	11116
5001	6000				4407	4407	114	7638	57	1146	13191	10069	3122
6001	8000				40151	40151	526	35243	263	5287	80680	61584	19097
8001	10000				56255	56255	622	41675	311	6252	104181	79522	24660
10001	12000			27208	56787	83995	628	42077	314	6312	132384	101050	31335
12001	14000			28415	67951	96366	656	43953	328	6594	146913	112139	34773
14001	16000			21868	46810	68678	452	30285	226	4543	103506	79007	24499
16001	18000		31253	37240	79744	148238	770	51591	385	7739	207568	158438	49130
18001	20000		32331	36951	79139	148421	764	51189	382	7679	207290	158225	49064
20001	22000	9369	10662	12192	26105	58328	252	16884	126	2533	77746	59344	18402
22001	24000	10995	12525	27140	30658	81318	296	19832	148	2975	104126	79480	24646
24001	26000	146171	165528	358682	405140	1075520	3912	262110	1956	39320	1376950	1051034	325916
26001	28000	70325	79623	182053	194893	526894	1882	126097	941	18916	671907	512871	159037
28001	30000	1936	4313	5033	5376	16658	52	3484	26	523	20664	15773	4891
36001	38000(T)	53752	61174	69941	124787	309654	1446	96884	482	9689	416227	317709	98519
GRAND TOTAL		11508977	18414361	27621538	43273744	100818621	1928003	129179374	952431	19145999	249144004	190173008	58970991

TABLE 5-7

DISTRIBUTION OF INCREMENTAL COSTS - URBAN SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		ANNUAL VEHICLE MILES (X1000)		TOTAL PROPORTIONAL COST		ADJUSTED TOTAL COST		FEDERAL AID PROPOSED STATE HIGHWAY EXTENSION ($)	REMAINING COST PROPOSED STATE HIGHWAY EXTENSION ($)	REMAINING TOTAL COST ($)
		ARTERIAL STREETS	PROPOSED STATE HIGHWAY EXTENSION	ARTERIAL STREETS ($)	PROPOSED STATE HIGHWAY EXTENSION ($)	ARTERIAL STREETS ($)	PROPOSED STATE HIGHWAY EXTENSION ($)			
PASSENGER CARS		114124	178911	61354273	26326289	22918627	11984794	3826202	8158592	31077219
COMMERCIAL TRUCKS										
UNDER	5000	3775	6763	2182651	1742109	815320	793079	253194	539885	1355205
5001	6000	970	1881	571113	538569	213337	245178	78274	166904	380241
6001	8000	2351	4844	257862	2045973	96323	931410	297357	634053	730376
8001	10000	1803	3248	1231331	1853584	459958	843827	296396	574431	1034389
10001	12000	960	1368	658150	832565	245849	379017	121003	258014	503386
12001	14000	685	893	471941	555867	176292	253053	80788	172265	348557
14001	16000	336	791	232204	545305	86739	248245	79253	168992	255731
16001	18000	429	1055	301642	757029	112677	344630	110025	234606	347283
18001	20000	508	1397	358625	1027196	133963	467621	149290	318331	452294
20001	22000	572	1235	412634	914974	154138	416533	132980	283553	437691
20001	22000(T)	6	34	6001	29096	2242	13246	4229	9017	11259
22001	24000	280	456	205782	393477	76869	179127	57187	121940	198809
22001	24000(T)	2	10	2027	8634	757	3931	1255	2676	3433
24001	26000	174	384	131134	327588	48985	149131	47611	101521	150506
24001	26000(T)	3	16	3028	15397	1131	7009	2238	4772	5903
26001	28000	227	678	175133	653508	65420	297503	94979	202524	267944
26001	28000(T)	4	20	4029	19380	1505	8823	2817	6006	7511
28001	30000(T)	3	17	3074	17117	1148	7792	2488	5305	6453
30001	32000(T)	8	42	8118	42685	3032	19432	6204	13228	16260
32001	34000(T)	14	69	14026	69899	5240	31821	10159	21662	26902
34001	36000(T)	17	96	17823	110178	6658	50158	16013	34145	40803
36001	38000(T)	11	65	11283	75726	4215	34474	11006	23468	27683
38001	40000(T)	15	115	17382	132686	6493	60404	19284	41120	47613
40001	42000(T)	63	931	80737	1106947	30159	503927	160881	343046	373205
FARM TRUCKS										
UNDER	5000	1512	2609	850822	669680	317821	304866	97330	207536	525357
5001	6000	920	1584	523703	451692	195627	205628	65648	139981	335608
6001	8000	892	1700	544927	717617	203555	326688	104297	222391	425946
8001	10000	383	770	249760	433528	93297	197359	63008	134352	227649
10001	12000	141	262	94122	156496	35159	71243	22745	48499	83658
12001	14000	186	342	125395	208717	46841	95016	30334	64682	111523
14001	16000	74	287	49091	192763	18338	87753	28016	59738	78076
16001	18000	139	512	93393	351700	34887	1601081	51115	108993	143880
18001	20000	223	319	146482	221879	54718	101009	32247	68761	123479
20001	22000	244	431	160849	316206	60084	143950	45957	97993	158077
22001	24000	170	394	114739	336671	42860	153266	48931	104335	147195
24001	26000	62	167	42070	146614	15715	66745	11308	45436	61151
26001	28000	38	118	26187	113174	9782	51521	16448	35073	44855
TRACTOR TRUCKS										
12001	14000	4	8	2705	4665	1010	2124	678	1446	2456
14001	16000	3	18	2077	12659	776	5763	1840	3923	4699
16001	18000	6	45	4221	32086	1577	14607	4663	9943	11520
18001	20000	11	99	7789	72765	2910	33126	10576	22550	25460
20001	22000	15	147	40785	111329	4029	50681	16180	34501	38530
22001	24000	14	140	10416	123508	3891	56226	17950	38275	42166
24001	26000	16	159	11908	143598	4448	65372	20870	44501	48949
26001	28000	25	211	18189	205869	6794	93720	29920	63799	70593
32001	34000(T)	1	19	1053	18830	393	8572	2737	5835	6228
34001	36000(T)	22	446	24517	500364	9158	227786	72722	155064	164222
36001	38000(T)	1	40	1136	47862	424	21789	6956	14833	15257
38001	40000(T)	6	125	7023	152130	2623	69256	22110	47146	49769
40001	42000(T)	23	328	25639	369096	9577	168028	53644	114384	123961

TABLE 5-7
(Continued)
DISTRIBUTION OF INCREMENTAL COSTS - URBAN SYSTEM

TYPE OF VEHICLE BY G.V.W. CLASS		ANNUAL VEHICLE MILES (X1000)		TOTAL PROPORTIONAL COST		ADJUSTED TOTAL COST		FEDERAL AID PROPOSED STATE HIGHWAY EXTENSION ($)	REMAINING COST PROPOSED STATE HIGHWAY EXTENSION ($)	REMAINING TOTAL COST ($)
		ARTERIAL STREETS	PROPOSED STATE HIGHWAY EXTENSION	ARTERIAL STREETS ($)	PROPOSED STATE HIGHWAY EXTENSION ($)	ARTERIAL STREETS ($)	PROPOSED STATE HIGHWAY EXTENSION ($)			
SEMI TRAILERS										
8001	10000	1	8	375	3292	140	1499	478	1020	1160
10001	12000	1	8	380	3819	142	1738	555	1183	1325
12001	14000	6	53	2240	25503	837	11610	3707	7903	8740
14001	16000	9	79	3363	39317	1256	17899	5714	12184	13440
16001	18000	49	440	10550	218698	3941	99560	31785	67775	71716
22001	24000(T)	1	10	728	7222	272	3288	1050	2238	2510
24001	26000(T)	1	16	723	11754	270	5351	1708	3642	3912
26001	28000(T)	2	32	1441	23746	538	10810	3451	7359	7897
28001	30000(T)	9	141	6486	108236	2423	49273	15731	33543	35966
30001	32000(T)	68	998	49040	770429	18319	350730	111972	238758	257077
FULL TRAILERS										
UNDER	3000	300	472	97574	90052	36448	40995	13088	27907	64355
3001	4000	65	103	21952	22623	8200	10299	3288	7011	15211
4001	6000	47	74	16804	19725	6277	8980	2867	6113	12390
4001	6000	76	120	46439	37507	17347	17075	5451	11624	28971
6000	8000	18	36	5889	14453	2200	6580	2101	4479	6679
8001	10000	7	16	2299	6688	859	3045	972	2073	2932
10001	12000	6	13	1973	6087	737	2771	885	1886	2623
28001	30000	1	18	758	17602	283	8013	2558	5455	5738
30001	32000	3	98	2264	96821	846	44077	14072	30005	30851
32001	34000	2	61	1509	59814	564	27230	8693	18537	19101
34001	36000	21	585	15845	578109	5919	263179	84021	179158	185077
34001	36000(T)	13	3	14052	3655	5249	1664	531	1133	6382
36001	38000(T)	0	29	0	35791	0	16293	5202	11092	11092
38001	40000(T)	0	2	0	2473	0	1126	359	766	766
40001	42000(T)	0	10	0	12396	0	5643	1802	3842	3842
BUSSES										
UNDER	5000	51	14	28826	3616	10768	1646	525	1120	11888
5001	6000	14	4	8019	1140	2995	519	166	353	3348
6001	8000	60	17	36386	7215	13592	3284	1049	2236	15828
8001	10000	69	19	42723	9014	15959	4103	1310	2793	18752
10001	12000	68	19	43465	11539	16236	5253	1677	3576	19812
12001	14000	70	20	45575	13057	17024	5944	1898	4046	21070
14001	16000	48	13	31404	8687	11731	3955	1263	2692	14423
16001	18000	87	25	57021	18250	21300	8308	2652	5656	26956
18001	20000	8	25	6437	18058	2404	8221	2625	5596	8000
20001	22000	8	8	747	5731	279	2609	833	1776	2055
22001	24000	3	10	2496	8108	932	3691	1178	2513	3445
24001	26000	38	114	32802	97765	12253	44506	14209	30298	42551
26001	28000	44	162	38178	116373	14261	52978	16913	36064	50325
28001	30000	0	2	0	1884	0	857	274	584	584
30001	32000	35	87	32977	82906	12318	37742	12049	25693	38011
32001	34000	35	87	33327	83003	12449	37786	12063	25723	38172
34001	36000	140	348	133297	332397	49793	151321	48310	103011	152804
36001	38000	9	27	8750	28344	3268	12903	4119	8784	12052
GRAND TOTAL		133964	221025	72776115	49316175	27174000	22450722	7167497	15283226	42457226

TABLE 5-8

DISTRIBUTION OF STRUCTURAL COSTS

TYPE OF VEHICLE BY G.V.W. CLASS		NO. OF AXLES IN GROUP & AVERAGE MAXIMUM LOAD			MAXIMUM AXLE LOAD APPLICABLE (L)	(1) WEIGHTED AXLE* LOAD X TRAVEL H20-S16(L-24)N	(2) COST $33.570961	(3) WEIGHTED AXLE* LOAD X TRAVEL H15-S12(L_1-16)N	(4) COST $16.704489	(5) RELATIVE ANNUAL VEHICLE MILES (N)	(6) BASIC H-10 STRUCTURE WIDTH INCREMENT @ $18.240806 Per Vehicle Mile	(7) BASIC H-10 STRUCTURE REM. COST @ $53.584755 Per Vehicle Mile	(8) OTHER STRUCTURES @ $2.227482 Per Vehicle Mile	(9) TOTAL COST COL.2+4+6+7+8	(10) FEDERAL AID (52.754655%)	(11) TOTAL REMAINING COST (9-10)
		FRONT	INTER	REAR												
							$		$		$	$	$	$	$	$
PASSENGER CARS		1 @ 2		1 @ 2						2308587		123705069	5142337	128847405	67973004	60874401
COMMERCIAL TRUCKS																
UNDER	5000	1 @ 2		1 @ 3						78140		4187113	174055	4361168	2300719	2060449
5001	6000	1 @ 2		1 @ 4						21339		1143446	47532	1190977	628296	562681
6001	8000	1 @ 3		1 @ 5						54385		2914207	121142	3035349	1601288	1434061
8001	10000	1 @ 3		1 @ 7						37388	681987	2003427	83281	2768695	1460616	1308080
10001	12000	1 @ 4		1 @ 8						16616	303089	890364	37012	1230465	649128	581338
12001	14000	1 @ 4		1 @ 10						10985	200375	588629	24469	813473	429145	384328
14001	16000	1 @ 4		1 @ 12						19705	359435	1055888	43893	1459215	769804	689411
16001	18000	1 @ 5		1 @ 13						25976	473823	1391918	57861	1923602	1014790	908812
18001	20000	1 @ 5		1 @ 15						33837	617214	1813147	75371	2505733	1321891	1183842
20001	22000	1 @ 6		1 @ 16						31093	567161	1666111	69259	2302531	1214693	1087839
20001	22000	1 @ 4		2 @ 9	18			2334	38988	1167	21287	62533	2600	125408	66159	59250
22001	24000	1 @ 7		1 @ 17	17			12204	203862	12204	222611	653948	27184	1107605	584313	523292
22001	24000	1 @ 4		2 @ 10	20			1452	24255	363	6621	19451	809	51136	26977	24159
24001	26000	1 @ 8		1 @ 18	18			21400	357476	10700	195177	573357	23834	1149844	606596	543248
24001	26000	1 @ 4		2 @ 11	22			3558	59435	593	10817	31776	1321	103348	54521	48827
26001	28000	1 @ 13		1 @ 15						17844	325489	956166	39747	1321403	697101	624301
26001	28000	1 @ 4		2 @ 12	24			6200	103568	775	14137	41528	1726	160959	84913	76046
28001	30000	1 @ 6		2 @ 12	24			5000	83522	625	11401	33491	1392	129806	68479	61327
30001	32000	1 @ 6		2 @ 13	26	3274	109911	13096	218762	1637	29860	87718	3646	449898	237342	212556
32001	34000	1 @ 6		2 @ 14	28	10692	358941	21384	357209	2673	48758	143232	5954	914093	482227	431867
34001	36000	1 @ 8		2 @ 14	28	14444	484899	28888	482559	3611	65868	193495	8043	1234864	651448	583416
36001	38000	1 @ 8		2 @ 15	30	15150	508600	20200	337431	2525	46058	135302	5624	1033015	544963	488051
38001	40000	1 @ 8		2 @ 16	32	33168	1113482	33168	554055	4146	75626	222162	9235	1974560	1041672	932888
40001	42000	1 @ 10		2 @ 16	32	256192	8600612	256192	4279556	32024	584144	1715998	71332	15251643	8045952	7205691
FARM TRUCKS																
UNDER	5000	1 @ 2		1 @ 3						37598		2014680	83749	2098429	1107019	991410
5001	6000	1 @ 2		1 @ 4						22850		1224412	50898	1275310	672785	602524
6001	8000	1 @ 3		1 @ 5						23602		1264707	52573	1317280	694927	622354
8001	10000	1 @ 3		1 @ 7						10462	190835	560604	23304	774743	408713	366030
10001	12000	1 @ 4		1 @ 8						3703	67546	198424	8248	274218	144663	129555
12001	14000	1 @ 4		1 @ 10						4788	87337	256564	10665	354566	187050	167516
14001	16000	1 @ 4		1 @ 12						13426	244901	719429	29906	994236	524506	469730
16001	18000	1 @ 5		1 @ 13						24467	446298	1311058	54500	1811856	955838	856018
18001	20000	1 @ 5		1 @ 15						24816	452664	1329759	55277	1837700	969473	868228
20001	22000	1 @ 6		1 @ 16						29482	537775	1579786	65671	2183232	1151756	1031475
22001	24000	1 @ 7		1 @ 17	17			23233	388095	23233	423789	1244935	51751	2108570	1112369	996201
24001	26000	1 @ 8		1 @ 18	18			18246	304790	9123	166411	488854	20321	980376	517194	463182
26001	28000	1 @ 13		1 @ 15						5711	104173	306023	12721	422917	223108	199808
TRACTOR TRUCKS																
12001	14000	1 @ 4		1 @ 10						564	10288	30222	1256	41766	22034	19732
14001	16000	1 @ 5		1 @ 11						979	17858	52460	2181	72498	38246	34252
16001	18000	1 @ 5		1 @ 13						2386	43523	127853	5315	176691	93213	83478
18001	20000	1 @ 5		1 @ 15						5172	94341	277141	11521	383002	202052	180950
20001	22000	1 @ 6		1 @ 16						7599	138612	407191	16927	562729	296866	265863
22001	24000	1 @ 7		1 @ 17	17			7213	120490	7213	131571	386507	16067	654634	345350	309284
24001	26000	1 @ 8		1 @ 18	18			16418	274254	8209	149739	439877	18285	882156	465378	416778
26001	28000	1 @ 13		1 @ 15						11016	200941	590290	24538	815768	430356	385412
32001	34000	1 @ 6		2 14	28	3016	101250	6032	100762	754	13754	40403	1680	257848	136027	121821
34001	36000	1 @ 8		2 @ 14	28	68244	2291017	136488	2279962	17061	311206	914210	38003	5834398	3077917	2756481
36001	38000	1 @ 8		2 @ 15	30	9054	303952	12072	201656	1509	27525	80859	3361	617354	325683	291671
38001	40000	1 @ 8		2 @ 16	32	38600	1295839	38600	644793	4825	88012	258546	10748	2297938	1212269	1085669
40001	42000	1 @ 10		2 @ 16	32	102184	3430415	102184	1706932	12773	232990	684438	28452	6083226	3209185	2874041

*L = 75 % Maximum Axle Load on Trailers.

*L_1 = L for Axles between 16K and 24K; 24 Kips for Axles between 24K and 32K.

TABLE 5-8
(Continued)
DISTRIBUTION OF STRUCTURAL COSTS

TYPE OF VEHICLE BY G.V.W. CLASS		NO. OF AXLES IN GROUP & AVERAGE MAXIMUM LOAD			MAXIMUM AXLE LOAD APPLICABLE (L)	(1) WEIGHTED AXLE* LOAD X TRAVEL H20-S16(L-24)N	(2) COST $33.570961	(3) WEIGHTED AXLE* LOAD X TRAVEL H15-S12(L_1-16)N	(4) COST $16.704489	(5) RELATIVE ANNUAL VEHICLE MILES (N)	(6) BASIC H-10 STRUCTURE WIDTH INCREMENT @ $18.240806 Per Vehicle Mile	(7) BASIC H-10 STRUCTURE REM.COST @ $53.584755 Per Vehicle Mile	(8) OTHER STRUCTURES @ $2.227482 Per Vehicle Mile	(9) TOTAL COST COL.2+4+6+7+8	(10) FEDERAL AID (52.754655%)	(11) TOTAL REMAINING COST (9-10)
		FRONT	INTER	REAR												
SEMI TRAILERS							$		$		$	$	$	$	$	$
8001	10000			1 @ 10						333	6074	17844	742	24659	13009	11651
10001	12000			1 @ 12						331	6038	17737	737	24512	12931	11581
12001	14000			1 @ 14						2355	42957	126192	5246	174395	92001	82394
14001	16000			1 @ 16						3519	64189	188565	7839	260593	137475	123118
16001	18000			1 @ 18						19725	359800	1056959	43937	1460696	770585	690111
22001	24000			2 @ 12	18			864	14433	432	7880	23149	962	46424	24491	21933
24001	26000			2 @ 13	19.5			2384	39815	681	12422	36491	1517	90245	47609	42636
26001	28000			2 @ 14	21			7375	123196	1475	26905	79038	3286	232424	122614	109810
28001	30000			2 @ 15	22.5			41334	690455	6359	115993	340746	14165	1161358	612671	548687
30001	32000			2 @ 16	24			358800	5993571	44850	818100	2403276	99903	9314850	4914017	4400833
FULL TRAILERS																
UNDER	3000		1 @ 3							5709		305915	12717	318632	168093	150539
3001	4000		1 @ 4							1242		66552	2767	69319	36569	32750
4001	6000		1 @ 6							1670		89487	3720	93206	49171	44035
4001	6000		2 @ 3							1454		77912	3239	81151	42811	38340
6001	8000		1 @ 8							3785		202818	8431	211249	111444	99805
8001	10000		1 @ 10							1669	30444	89433	3718	123595	65202	58393
10001	12000		1 @ 12							1368	24953	73304	3047	101305	53443	47862
28001	30000	1 @ 14		1 @ 16						531	9686	28454	1183	39322	20744	18578
30001	32000	1 @ 16		1 @ 16						2843	51859	152342	6333	210533	111066	99467
32001	34000	1 @ 16		1 @ 18	18			3512	58666	1756	32031	94095	3912	188703	99550	89153
34001	36000	1 @ 18		1 @ 18	18			33720	563275	16860	307540	903439	37555	1811810	955814	855996
34001	36000	1 @ 14		2 @ 11	22			6384	106642	1064	19408	57014	2370	185434	97825	87609
36001	38000	1 @ 16		2 @ 11	22			56046	936220	9341	170387	500535	20807	1627949	858819	769130
38001	40000	1 @ 16		2 @ 12	24			4520	75504	565	10306	30275	1259	117344	61905	55439
40001	42000	1 @ 16		2 @ 13	26	6008	201694	24032	401442	3004	54795	160969	6691	825592	435538	390054
BUSSES																
UNDER	5000	1 @ 2		1 @ 3						1152		61730	2566	64296	33919	30377
5001	6000	1 @ 2		1 @ 4						301		16129	671	16800	8863	7937
6001	8000	1 @ 3		1 @ 5						1349		72286	3005	75291	39719	35571
8001	10000	1 @ 4		1 @ 6						1541	28109	82574	3433	114116	60201	53914
10001	12000	1 @ 4		1 @ 8						1532	27945	82092	3413	113449	59850	53600
12001	14000	1 @ 6		1 @ 8						1572	28675	84235	3502	116411	61412	54999
14001	16000	1 @ 6		1 @ 10						1075	19609	57604	2395	79607	41996	37611
16001	18000	1 @ 6		1 @ 12						1801	32852	96506	4012	133370	70359	63011
18001	20000	1 @ 6		1 @ 14						1037	18916	55567	2310	76793	40512	36281
20001	22000	1 @ 6		1 @ 16						375	6840	20094	835	27770	14650	13120
22001	24000	1 @ 8		1 @ 16						425	7752	22774	947	31473	16603	14869
24001	26000	1 @ 8		1 @ 18	18			9618	160664	4809	87720	257689	10712	516785	272628	244157
26001	28000	1 @ 10		1 @ 18	18			4772	79714	2386	43523	127853	5315	256404	135265	121139
28001	30000	1 @ 12		1 @ 18	18			130	2172	65	1186	3483	145	6985	3685	3300
30001	32000	1 @ 14		1 @ 18	18					122	2225	6537	272	9035	4766	4268
32001	34000	1 @ 16		1 @ 18	18					122	2225	6537	272	9035	4766	4268
34001	36000	1 @ 18		1 @ 18	18					488	8902	26149	1087	36138	19064	17074
36001	38000	1 @ 6		2 @ 16	32	8824	296230	8824	147400	1103	20120	59104	2457	525311	277126	248185
GRAND TOTAL						568850	19096842	1347877	22515581	3196435	11551393	171280192	7120009	231564005	122160795	109394109

*L = 75 % Maximum Axle Load on Trailers.

*L_1 = L for Axles between 16K and 24K; 24 Kips for Axles between 24K and 32K.

TABLE 5-9

ASSEMBLY OF INCREMENTAL COSTS, ALL SYSTEMS

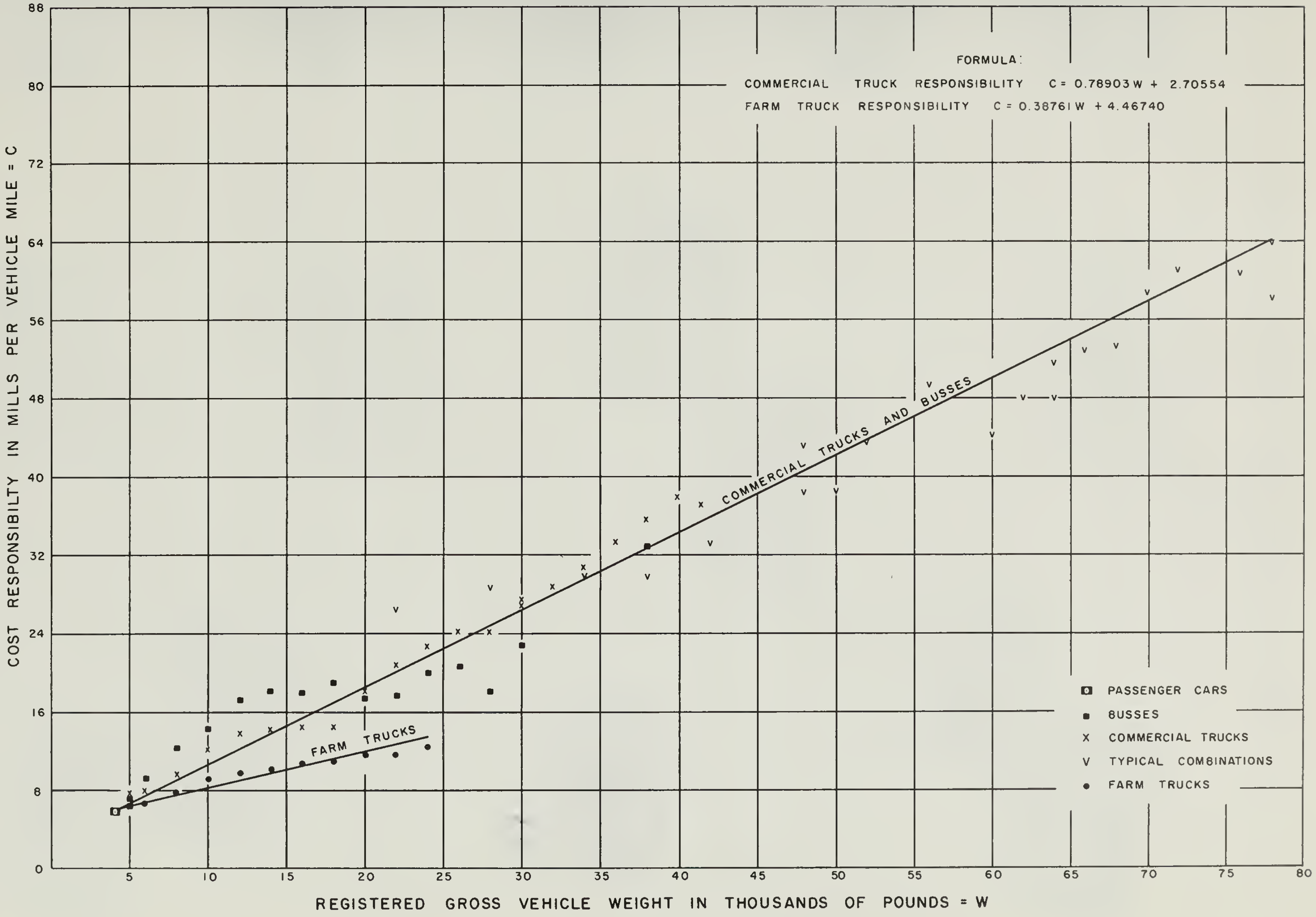
TYPE OF VEHICLE BY G.V.W. CLASS	(1) INTERSTATE (RURAL & URBAN) ($)	(2) STATE HIGH-WAYS (RURAL) ($)	(3) STATE HIGH-WAYS EXT. (URBAN) ($)	(4) SECONDARY (RURAL) ($)	(5) ARTERIAL STREETS (URBAN) ($)	(6) STRUCTURES (RURAL & URBAN) ($)	(7) TOTAL COL. 1+2+3+4+5+6 ($)	(8) TOTAL USER RESPONSIBILITY 99.042789 %	(9) USER RESPONSIBILITY PER ANNUM ($)	(10) ANNUAL VEHICLE MILES (X1000)	(11) USER RESPONSIBILITY PER VEHICLE MILE (CENTS)
PASSENGER CARS	25547042	88415053	8158592	106911609	22918627	60874401	312825323	309830925	15491546	2642858	0.5862
COMMERCIAL TRUCKS											
UNDER 5000	1117345	5350536	539885	4058426	815320	2060449	13941960	13808506	690425	91226	0.7568
5001 6000	332261	1646722	166904	1058699	213337	562681	3980604	3942501	197125	24913	0.7913
6001 8000	1027398	6627751	634053	2702742	96323	1434061	12522328	12402463	620123	63493	0.9767
8001 10000	963494	5767400	574431	2293175	459958	1308080	11366537	11257735	562887	43649	1.2896
10001 12000	396491	2738745	258014	1222780	245849	581338	5443217	5391113	269556	19399	1.3895
12001 14000	268842	1778993	172265	878483	176292	384328	3659203	3624177	181209	12825	1.4129
14001 16000	767742	3687570	168992	1462082	86739	689411	6862535	6796846	339842	23005	1.4773
16001 18000	1145631	4774483	234606	1893590	112677	908812	9069799	8982982	449149	30326	1.4811
18001 20000	1649850	6780154	318331	2248133	133963	1183842	12314273	12196399	609820	33902	1.7988
20001 22000	1060856	7284908	283553	2575145	154138	1087839	12446438	12327300	616365	31153	1.9785
20001 22000(T)	56466	283111	9017	109432	2242	59250	519517	514544	25727	1169	2.2008
22001 24000	444235	3106968	121940	1292231	76869	523292	5565535	5512261	275613	12227	2.2541
22001 24000(T)	19272	82425	2676	35901	757	24159	165191	163610	8181	364	2.2474
24001 26000	373070	3060435	101521	919007	48985	543248	5046264	4997961	249898	10721	2.3309
24001 26000(T)	37504	149066	4772	60640	1131	48827	301939	299049	14952	594	2.5172
26001 28000	1172568	4746667	202524	1227227	65420	624301	8038708	7961760	398088	17878	2.2267
26001 28000(T)	48614	200722	6006	77083	1505	76046	409976	406052	20303	776	2.6163
28001 30000(T)	39781	172896	5305	61560	1148	61327	342016	338743	16937	626	2.7056
30001 32000(T)	102056	470468	13228	154678	3032	212556	956019	946868	47343	1640	2.8868
32001 34000(T)	157001	791915	21662	257271	5240	431867	1664955	1649018	82451	2678	3.0788
34001 36000(T)	239010	1239662	34145	328227	6658	583416	2431117	2407846	120392	3618	3.3276
36001 38000(T)	178851	872260	23468	263392	4215	488051	1830238	1812719	90636	2530	3.5824
38001 40000(T)	286082	1591935	41120	326882	6493	932888	3185399	3154908	157745	4154	3.7974
40001 42000(T)	2745035	12205202	343046	1504374	30159	7205691	24033507	23803456	1190173	32086	3.7093
FARM TRUCKS											
UNDER 5000	391827	1917329	207536	4752382	317821	991410	8578305	8496192	424810	66320	0.6405
5001 6000	255793	1294365	139981	2922030	195627	602524	5410320	5358532	267927	40306	0.6647
6001 8000	386341	2068909	222392	3036204	203555	622354	6539754	6477154	323858	41632	0.7779
8001 10000	209501	1252118	134352	1397376	93297	366030	3452673	3419624	170981	18454	0.9265
10001 12000	68663	485230	48499	531551	35159	129555	1298657	1286226	64311	6532	0.9846
12001 14000	94111	624380	64682	697157	46841	167516	1694686	1678464	83923	8446	0.9936
14001 16000	338954	2075598	59738	2150761	18338	469730	5113119	5064176	253209	23682	1.0692
16001 18000	544018	4055836	108993	4094903	34887	856018	9694654	9601856	480093	43158	1.1124
18001 20000	398911	2490228	68761	6448283	54718	868228	10329129	10230257	511513	43773	1.1686
20001 22000	616073	3350846	97993	7080068	60085	1031475	12236540	12119411	605971	52004	1.1652
22001 24000	636237	3589797	104335	5044877	42860	996201	10414308	10314621	515731	40981	1.2585
24001 26000	274929	1551829	45436	1845304	15715	463182	4196395	4156227	207811	16092	1.2914
26001 28000	154533	1187407	35073	1165046	9782	199809	2751649	2725310	136266	10074	1.3526
TRACTOR TRUCKS											
12001 14000	16348	83325	1446	65865	1010	19732	187728	185931	9297	564	1.6483
14001 16000	44937	204788	3923	48614	776	34252	337290	334062	16703	979	1.7061
16001 18000	112663	520571	9943	97436	1577	83478	825667	817764	40888	2386	1.7137
18001 20000	284533	1165919	22550	192584	2910	180950	1849447	1831743	91587	5172	1.7708
20001 22000	426396	1784293	34501	269670	4029	265863	2784752	2758096	137905	7599	1.8148
22001 24000	461073	1970409	38275	256926	3891	309284	3039858	3010760	150538	7213	2.0870
24001 26000	532196	2285042	44502	294663	4448	416778	3577628	3543383	177169	8209	2.1582
26001 28000	803386	3238350	63799	455092	6794	385412	4952834	4905425	245271	11016	2.2265
32001 34000(T)	53576	236830	5836	23314	393	121821	441769	437541	21877	754	2.9015
34001 36000(T)	1376099	5960650	155064	572340	9158	2756481	10829792	10726128	536306	17061	3.1435
36001 38000(T)	116161	648731	14833	34489	424	291671	1106309	1095720	54786	1509	3.6306
38001 40000(T)	373122	2043107	47146	176931	2623	1085669	3728597	3692907	184645	4825	3.8268
40001 42000(T)	1088065	4603793	114384	578837	9577	2874041	9268698	9179977	458999	12773	3.5935

TABLE 5-9
(Continued)
ASSEMBLY OF INCREMENTAL COSTS, ALL SYSTEMS

TYPE OF VEHICLE BY G.V.W. CLASS	(1) INTERSTATE (RURAL & URBAN) ($)	(2) STATE HIGH-WAYS (RURAL) ($)	(3) STATE HIGH-WAYS EXT. (URBAN) ($)	(4) SECONDARY (RURAL) ($)	(5) ARTERIAL STREETS (URBAN) ($)	(6) STRUCTURES (RURAL & URBAN) ($)	(7) TOTAL Col. 1+2+3+4+5+6 ($)	(8) TOTAL USER RESPONSIBILITY 99.042789 %	(9) USER RESPONSIBILITY PER ANNUM ($)	(10) ANNUAL VEHICLE MILES (X1000)	(11) USER RESPONSIBILITY PER VEHICLE MILE (CENTS)
SEMI TRAILERS											
8001 10000	10411	35334	1020	6646	140	11651	65201	64577	3229	333	0.9696
10001 12000	12039	44708	1183	6731	142	11581	76385	75653	3783	331	1.1428
12001 14000	82420	335712	7903	46754	837	82394	556019	550697	27535	2355	1.1692
14001 16000	143895	530692	12184	69242	1256	123118	880387	871958	43598	3519	1.2389
16001 18000	792741	3013229	67775	223601	3941	690111	4791399	4745535	237277	19725	1.2029
22001 24000(T)	11321	134428	2238	12885	272	21933	183076	181324	9066	432	2.0987
24001 26000(T)	29201	179070	3642	20573	270	42636	275392	272756	13638	681	2.0026
26001 28000(T)	72392	366232	7359	42389	538	109810	598720	592989	29649	1475	2.0101
28001 30000(T)	391998	1571644	33543	185058	2423	548687	2733353	2707189	135359	6359	2.1286
30001 32000(T)	2866718	10866760	238758	1305445	18319	4400833	19696832	19508292	975415	44850	2.1748
FULL TRAILERS											
UNDER 3000	67051	295886	27907	91747	36448	150539	669578	663169	33159	9984	0.3321
3001 4000	16113	74246	7011	20719	8200	32750	159039	157516	7876	2174	0.3623
4001 6000	26985	129804	6113	31658	6277	44035	244873	242529	12127	2923	0.4149
4001 6000(T)	28778	121982	11624	44058	17347	38340	262128	259619	12981	1454	0.8928
6001 8000	89585	460637	4479	84430	2200	99805	741136	734041	36702	6623	0.5542
8001 10000	39656	221346	2073	37590	859	58393	359916	356471	17824	2921	0.6102
10001 12000	43006	199024	1886	30773	737	47862	323287	320193	16010	2394	0.6687
28001 30000	39106	162051	5455	13909	283	18578	239383	237091	11855	531	2.2325
30001 32000	226366	881480	30005	76373	846	99467	1314536	1301953	65098	2843	2.2898
32001 34000	139885	539877	18537	47256	564	89153	835271	827276	41364	1756	2.3556
34001 36000	1343302	5223745	179158	454314	5919	855996	8062433	7985259	399263	16860	2.3681
34001 36000(T)	90827	415456	1133	44438	5249	87609	644712	638540	31927	1064	3.0007
36001 38000(T)	935136	3969566	11092			769130	5684924	5630506	281525	9341	3.0139
38001 40000(T)	56174	240503	766			55439	352882	349504	17475	565	3.0930
40001 42000(T)	302738	1281667	3842			390054	1978300	1959363	97968	3004	3.2613
BUSSES											
UNDER 5000	11116	64815	1121	161228	10768	30377	279424	276750	13838	1949	0.7100
5001 6000	3122	18484	353	42749	2996	7937	75640	74916	3746	405	0.9249
6001 8000	19097	122307	2236	202900	13592	35571	395703	391916	19596	1582	1.2387
8001 10000	24659	153527	2793	236144	15959	53914	486997	482335	24117	1674	1.4407
10001 12000	31335	193987	3576	242163	16236	53600	540896	535719	26786	1546	1.7326
12001 14000	34773	210887	4047	253660	17024	54999	575390	569882	28494	1579	1.8046
14001 16000	24499	146850	2692	174626	11731	37611	398009	394199	19710	1077	1.8301
16001 18000	49130	264298	5656	290590	21300	63011	693985	687342	34367	1803	1.9061
18001 20000	49064	260650	5596	10686	2404	36281	364683	361192	18060	1037	1.7415
20001 22000	18402	97203	1776	3576	279	13120	134356	133070	6654	375	1.7743
22001 24000	24646	124139	2513	4736	932	14869	171836	170191	8510	425	2.0022
24001 26000	325916	1340805	30298	52959	12253	244157	2006388	1987183	99359	4809	2.0661
26001 28000	159037	514548	36064	25245	14261	121139	870294	861964	43098	2386	1.8063
28001 30000	4891	20357	584	596		3300	29729	29444	1472	65	2.2649
30001 32000			25693		12318	4268	42280	41875	2094	122	1.7161
32001 34000			25723		12449	4268	42440	42034	2102	122	1.7227
34001 36000			103011		49793	17074	169877	168251	8413	488	1.7239
36001 38000(T)	98519	368718	8784		3269	248185	727474	720510	36026	1103	3.2661
GRAND TOTAL	58970993	249712381	15283231	182753919	27174003	109403210	643297719	637140002	31857006	3766368	

CHART 5-1

INCREMENTAL RATE SCHEDULE FOR COMMERCIAL TRUCKS
FARM TRUCKS AND BUSSES



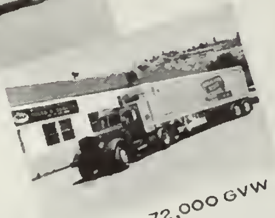
CALCULATED COST RESPON

(Cents Pe

0.59

1.22 At 12,000 GVW

5.79 At 70,000 GVW



5.95 At 72,000 GVW

1.69 At 18,000 GVW

3.58 At 42,000 GVW

1.06 At 10,000 GVW

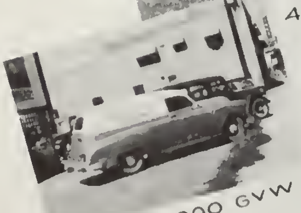
1.69 At 18,000 GVW

1.37 At 14,000 GVW

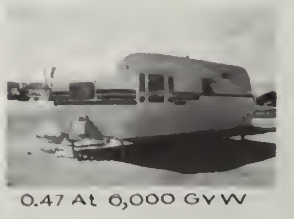
5.00 At 60,000 GVW

SPECIAL PERMIT At 80,000 GVW

3.58 At 42,000 GVW



0.74 At 6,000 GVW



0.47 At 6,000 GVW

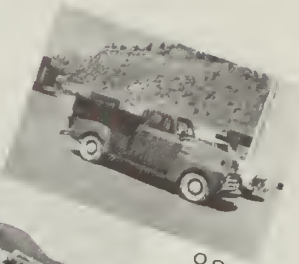
3.58 At 42,000 GVW

ILITY OF TYPICAL VEHICLES

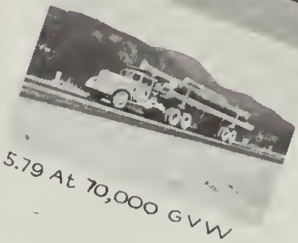
nicle Mile)

5.32 At 64,000 GVW

3.27 At 38,000 GVW

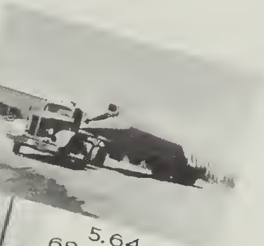


0.90 At 8,000 GVW

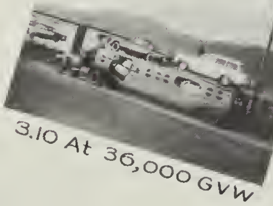


5.79 At 70,000 GVW

3.58 At 42,000 GVW



5.64 At 68,000 GVW



3.10 At 36,000 GVW

3.43 At 40,000 GVW

2.48 At 28,000 GVW

2.16 At 24,000 GVW

6.11 At 74,000 GVW

6.27 At 76,000 GVW

...?...

6.42 At 78,000 GVW

5.79 At 70,000 GVW

Federal Aid

The allotment of Federal-Aid funds to the highway construction program presents a knotty problem in an analysis of this type. The order in which these funds are included in the calculations materially affects the results. However, it is possible to dispose of the problem from a pure theoretical standpoint. It has been suggested that, since the State is only concerned with the allocation of its own share of program costs, Federal-Aid should be deducted before the incremental distribution is made. This point of view overlooks the theoretical significance of the incremental solution. The Earnings-Credit analysis differs from the Incremental analysis in this respect: that it is essentially a convenient tool for the interpolation of cost responsibilities not based on any specific philosophy or theory. Therefore, Federal-Aid may be logically and conveniently deducted at the outset. On the other hand, the theory of incurred cost on which the incremental solution is based is simply **not applicable to anything but the integral highway product.** Maintenance and administration cost are interwoven with and dependent upon construction cost. Thus as this analysis illustrates negative increments of maintenance may offset positive increments of construction. Much administrative cost is directly proportional to the size of the construction program. To leave these elements of cost untouched by Federal-Aid in the State's share can only lead to a disproportionate allocation.

Again is Federal-Aid to operate as a subsidy to trucks because the Federal Goverment intends to collect a larger amount of its share from trucks? This has the effect of making the State's analysis and the Federal Government's analysis interdependent—which they should not be since the latter agency is concerned with an average highway product traversing many states. Obviously the best solution is for the State to determine a total proportionate allocation which it considers fair and reasonable to be applied only to its own share of construction cost—leaving the Federal Government to do as it will with its share. Therefore Federal-Aid has not been deducted in advance in this analysis but has been applied to each system independently after the scale of cost allocation has been determined.

Non-Motor-Vehicle-Users' Responsibility

It would have been possible and theoretically desirable to subtract by systems the non-motor-vehicle-users' share of program cost as determined by the Earnings-Credit analysis if the ratios of user to non-user cost by systems had any real significance. However in the low-traffic high-mileage State of Montana the traffic on major arterial highways must subsidize traffic on other roads if these roads are to be built and maintained at all. Historically arterial routes have produced an excess of earnings which have been applied to secondary highways. The fiscal study has determined that it is not necessary to increase present revenues to build the new highway plant—but the historical subsidies must continue. It is, therefore, meaningless to determine a user's share of proposed Secondary Highways which the user, in practicality, cannot produce. Since the subsidies must continue, it seems most fair to distribute them to all vehicles alike. There are urban owned passenger cars which seldom travel on a local rural road, but must, nevertheless, pay part of their construction and upkeep. In the same way, large commercial vehicles, who may travel only on primary arteries, are legitimately charged for a part of the subsidy to secondary and local roads.

Accordingly, for this incremental analysis, the motor vehicle responsibilities which were determined for the several highway systems, (each system being reduced individually by appropriate Federal-Aid), were added together and the results were reduced in toto to the amount of user revenue required.

It is worthy of note that the user responsibility so distributed will not entirely cover the program cost for the twenty-year period. A deficit of some $52 million remains, which is the same deficit that would result from the continuation of the present tax schedules. However, this deficit would be recovered during the ensuing 12 years, as the fiscal study will show, with no further increase in annual revenues, during which time the adequately constructed highways will not require a large expenditure. If it should be decided not to adopt a thirty-two-year finance scheme, the rates resulting from the incremental solution should be scaled upwards. As it is here presented, they are directly comparable with present charges.

The Solution

Having disposed of the problems of this incremental analysis by theoretical consideration, there remained only a mechanical process to derive the answers. There were no foregone conclusions. There was no prejudice toward any user group. Tables 5-4 to 5-8, inclusive, show the calculation and disposition of costs in detail. Table 5-9 shows the assembly of charges and resultant total responsibility per vehicle mile for all vehicles in all weight groups. These responsibilities in graphical form are shown on Chart 5-1 and the results averaged by a mathematically fitted curve. The rates for combination vehicles were obtained by adding together the separate responsibilities of power units and trailers in typical combinations.

It was expected that the curve fitting the results would be logarithmic curving downwards towards the ends, (since this shape of curve was obtained on the individual systems). However, the best mathematical fit of the final results was a straight line as shown. The final responsibility-rate schedule calculated from the straight line equation was reapplied to travel to assure that the correct amount of revenues would be produced.

EARLY TAXATION METHODS—

A Move Toward Equity

Early Taxation Methods—
Poll Tax Gang Working out Annual Obligation on the Highways.

Illustration by: Charles Gray

Chapter 6

TAXING FOR HIGHWAY PURPOSES

Montana's highways and streets are financed by a combination of property taxes and highway-user revenues in addition to Federal assistance. Over the years there has been a general shift from property taxes to the user concept, and it may be said that the State highways today are supported entirely from highway-user funds in conjunction with Federal-Aid. City streets, at the other end of the picture, are supported almost entirely from taxes on property and other general revenues. County roads are supported jointly by user funds and by property taxes. The source of user funds for county roads comes partly from motor vehicle registration fees and partly from State highway-user sources as represented by construction expenditures on Federal-Aid secondary roads.

Property Taxes. Nationally, there has been a trend away from property taxes for roads. In Montana such taxes for county roads are levied against rural property only. There is a limitation of 10 mills annually for this purpose, and in 1955 we find the total levy, for this purpose by all counties, to be $3,164,345. It is found that 33 counties levied the full 10 mills permitted. Three counties did not levy any such tax and the remaining 20 counties levied in varying amounts. If all counties had levied to the maximum, $4,450,549 could have been raised from this souce. There has been some suggestion that the permissive 10 mill limit be raised to 12 or 15 mills to accommodate some low-valuation counties with high road cost problems. There does not seem to be any reason why such permissive legislation should not be approved by the legislative assembly.

In addition to the road levy, counties may also have a bridge fund levy which is assessed against all property, urban and rural, within the county. This may be levied at a maximum of 3 mills, but may be increased upwards to 5 mills, depending on property valuations and lineal feet of bridges within the county. In 1955, it appears that there were 36 counties which levied as much or more than was permitted by law for this purpose. The remaining counties all levied something for this fund but in all cases less than the total permissible. In this year a total of $1,641,742 was assessed for this purpose. A total of $1,905,450 could have been levied. Combining the road and bridge fund levies, we find that the counties could have legally assessed over one and a half million more dollars for these purposes in 1955. Actually, 27 of the 56 counties were levying to the maximum for both purposes and could not hope for additional revenue from these sources.

In cities we find that the law allows a levy of 10 mills for street purposes. In 1955, 93 of the 123 cities and towns levied this full amount and, so far as can be determined, there were only 5 very small towns that did not levy some tax for streets. In 1955, city levies for street purposes amounted to $1,679,907. Permissible levies would have been $1,800,858, a difference of only about $121,000, and most of this amount appears in one city, Billings. Obviously, there is little room for increased revenue within the established ceilings.

Special Assessments. Closely allied to general taxation for street and highway work in Montana is provision for special improvement districts. Work instituted under special improvement district procedures is financed by assessment against abutting or nearby property considered to be benefited by the improvements. Cities of Montana have made use of this financing method in the past, but probably not to the maximum possible extent. The use of this financial tool may have been enhanced to some degree by the recent action in the city of Great Falls, which negotiated special street improvement districts aggregating nearly $5 million. Certainly this was an expression by the people of the improvements desired and the willingness to pay the costs involved.

Assessment districts in rural areas of Montana are permited by law, but this is a procedure that has been little used in the past. Perhaps with the realization that permissible general levies are now at a near maximum, some rural areas may turn toward this type of levy for road improvements. A large scale movement in this direction seems unlikely, and, in any event, would probably not extend beyond the limits of urban type developments adjacent to city areas.

Highway User Taxes. User taxes might be defined as those taxes assessed on the ownership and operation of motor vehicles. Each of the several states has developed a use tax system, designed to recover a certain portion of highway costs from the highway-user. In Montana the principal use taxes are the flat annual registration fee for all vehicles, the gallonage tax on fuel, and the gross vehicle weight fee levied against all trucks and busses.

Registration Fee. The registration fee is almost as old as the motor vehicle era. It is usually levied as both a regulatory fee and a revenue producing measure. The method of levying such a fee varies from State to State, even for such standard vehicles as the passenger car. Perhaps the most popular basis is the flat fee with empty weight, horsepower and gross weight following in order. In Montana the registration fee might be considered as being based on weight, as those vehicles under 2,850 pounds, net weight, pay $5.00 per year, while those over that weight pay a fee of $10.00. The differential is difficult to justify, but there has been little interest of this matter at the State level since the entire fee has traditionally reverted to the county government. With such a moderate fee, it would perhaps be desirable to standardize at a flat fee for all vehicles at $10.00 per year and allow a differential only for such vehicles as the motorcyle, and small utility trailers under 2,500 pounds.

Fuel Taxes. Fuel taxes have been the major source of highway-user revenue for all States. This source has grown over the years with increased tax rates and increased usage. It is important to note that the impact of fuel tax increases applies to all vehicles. On a vehicle-mile basis, its effect is greatest on the heaviest vehicle that gets the least miles per gallon; on a ton-mile basis, its greatest effect is on the private passenger vehicle which gets the least ton-miles per gallon of fuel. Of itself, the fuel tax can hardly be expected to make an equitable distribution of the cost of providing highways, but it does have a place in the overall highway user tax structure.

Fuel tax rates vary in marked degree from State to State. In 1955, there was still one State with a 3-cent gasoline tax. On the other hand, there were 10 States with a 7-cent tax on gasoline, including Montana, and an additional 20 States with a 6 to 6.5-cent tax. Even California, with 6 million vehicles on its highways, finds a 6-cent tax necessary to support the highway program. There is little wonder that the State of Montana has been able to abide by anything less than a 7-cent gasoline tax in view of the limited vehicles on its highways and the consequent high cost per vehicle-mile.

Diesel Fuel. As fuels other than gasoline have come into prominent use on our highways, tax rates have been established to recover a fair share of the burden from these users. Since these taxes are collected in lieu of gasoline taxes, it is necessary, in order to retain equitability, that the rates bear a proportional relationship as reflected in statistics on miles per gallon to similar statistics for gasoline propelled vehicles. In order to accomplish this, the State of Montana in 1955 inaugurated a differential diesel fuel tax of 9-cents per gallon as equivalent to the 7-cent gasoline tax. This is a differential of 2-cents, or a ratio of 1.286 of diesel over gasoline. The fact that this differential has considerable validity was borne out by a comparative fuel consumption study conducted in 1956, discussed in detail elsewhere in this report. Actually, Montana has been somewhat of a pioneer in the establishment of this tax differential but the procedure seems to be supported by subsequent data.

Supplemental Vehicle Taxes. All States have some form of supplemental taxation of commercial vehicles. These methods of taxation usually take the form of a flat fee based on some type of weight. The

Table 6-1

	Trucks And Truck-Trailers			Trailers And Semi-Trailers		
Pounds	Annual Full Fees	Annual 20% Farm Fees	Annual[1] 75% Fees	Annual Full Fees	Annual 20% Farm Fees	Annual[1] 75% Fees
Up to 2,500 lbs. For Commercial Use	$	$	$	$ 3.50	$ 3.50	$ 3.50
Up to 6,000	6.00	4.00	4.50	4.50	4.00	4.00
6,001 to 8,000	10.00	4.00	7.50	12.00	4.00	9.00
8,001 to 10,000	14.00	4.00	10.50	14.00	4.00	10.50
10,001 to 12,000	16.00	4.00	12.00	16.00	4.00	12.00
12,001 to 14,000	18.00	4.00	13.50	18.00	4.00	13.50
14,001 to 16,000	22.00	4.40	16.50	22.00	4.40	16.50
16,001 to 18,000	30.00	6.00	22.50	30.00	6.00	22.50
18,001 to 20,000	40.00	8.00	30.00	40.00	8.00	30.00
20,001 to 24,000	75.00	15.00	56.25	75.00	15.00	56.25
24,001 to 26,000	100.00	20.00	75.00	100.00	20.00	75.00
26,001 to 28,000	125.00	25.00	93.75	125.00	25.00	93.75
28,001 to 30,000	165.00	33.00	123.75	165.00	33.00	123.75
30,001 to 32,000	210.00	42.00	157.50	210.00	42.00	157.50
32,001 to 34,000	255.00	51.00	191.25	255.00	51.00	191.25
34,001 to 36,000	300.00	60.00	225.00	300.00	60.00	225.00
36,001 to 38,000	345.00	69.00	258.75	345.00	69.00	258.75
38,001 to 40,000	390.00	78.00	292.50	390.00	78.00	292.50
40,001 to 42,000	435.00	87.00	326.25	435.00	87.00	326.25
Each 2,000 lbs. over 42,000	50.00	10.00	37.50	50.00	10.00	37.50

[1] Fees for Log, Livestock and Readymix Concrete haulers.

CHART 6-1

SOURCE OF REVENUE FOR HIGHWAYS, MONTANA 1955

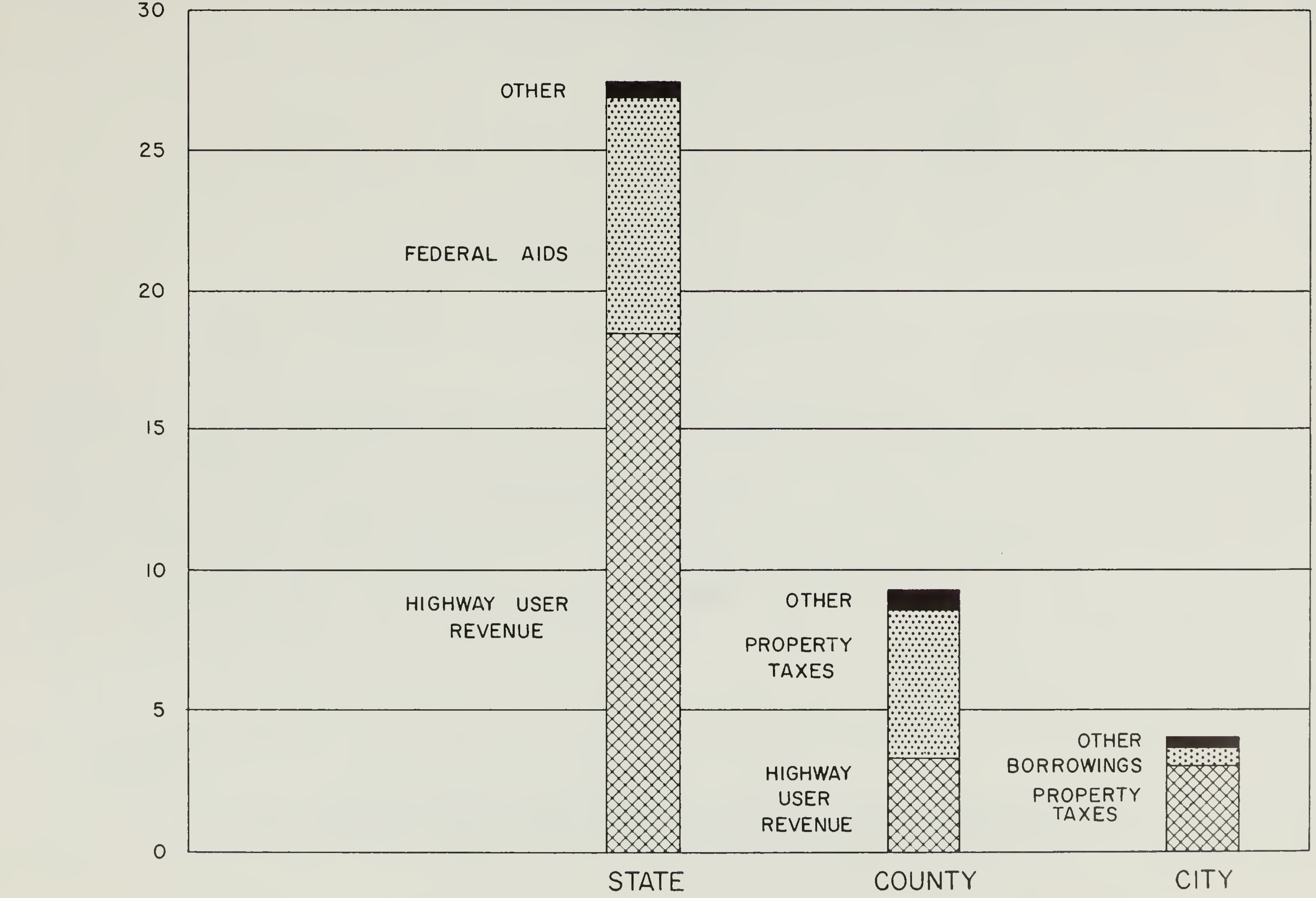
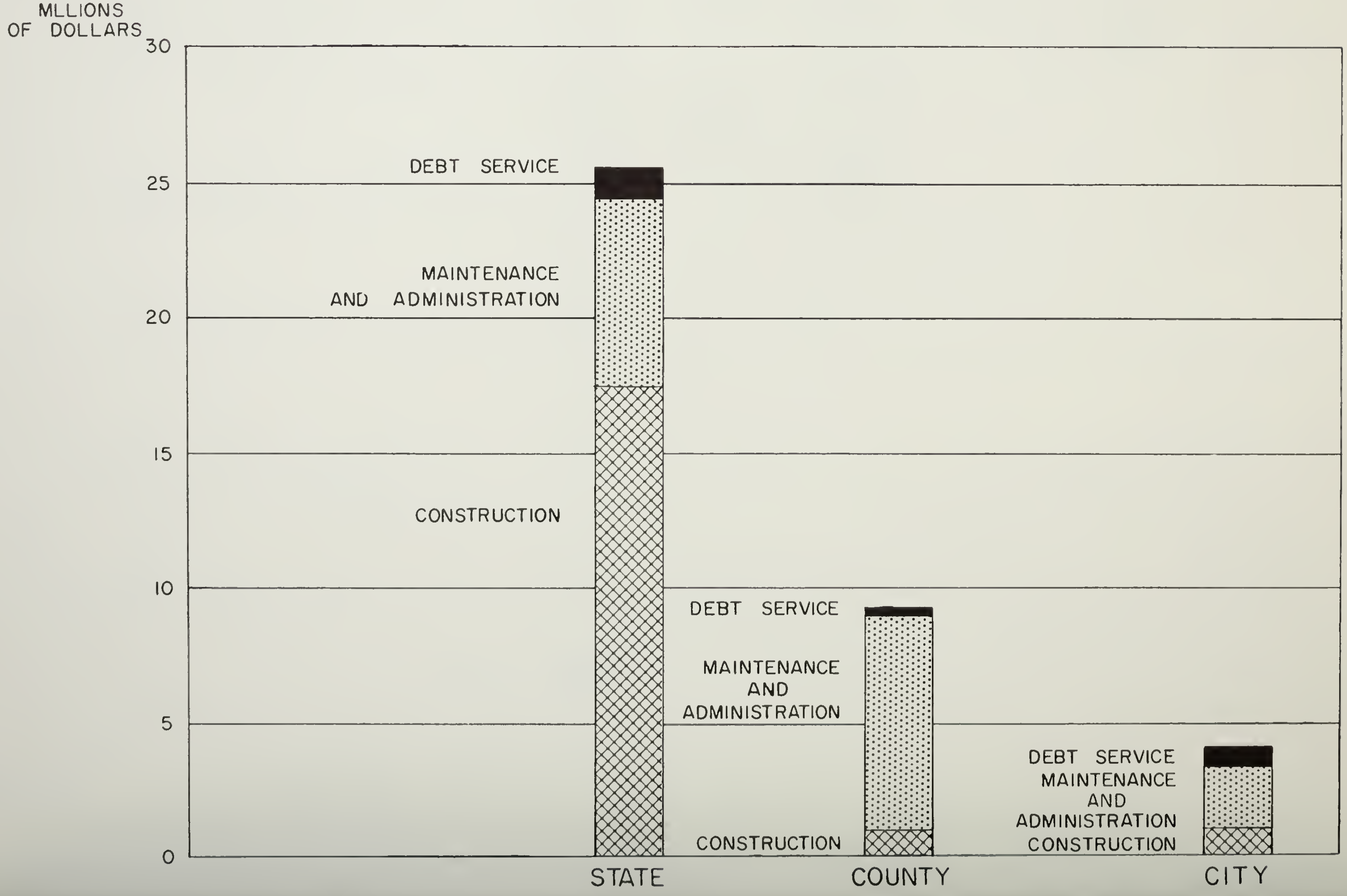


CHART 6-2

PURPOSES OF EXPENDITURES FOR HIGHWAYS, MONTANA 1955



majority of States use the declared maximum gross weight of the vehicle and load as a base for their fee. Sixteen States use the factor of unladen or empty weight and three still cling to the old favorite of manufacturers' rated capacity. Montana is among the majority in this regard and bases its fee on the declared maximum gross weight of the vehicle and load.

Fees in effect in Montana in 1956 are shown in Table 6-1.

It might be said that one of the reasons for studies of the Fact Finding Committee on Highways, Streets and Bridges was to determine the correct fees to be assessed to commercial vehicles. If this correct fee were to be incorporated in the present tax structure it would make its appearance in a revised Gross Vehicle Weight fee schedule. The present schedule is based only on what was considered reasonable and somewhat in accordance with established rates in other States. Also, this State does continue to charge fees for the pulling unit and the trailer separately, a procedure that seems to be losing favor as the interchange and rental of trailers becomes more prevalent.

The fee schedule in Table 6-1 is substantially the same for power units and for trailers. This leads to what might be considered to be inequalities in the registration of vehicles and combinations. As an example, a single unit truck registering at 42,000 pounds, a not uncommon situation, pays a gross weight fee of $435.00. On the other hand, a very typical combination of 24,000 pounds gross pulling unit, and an 18,000 pound trailer, total also 42,000 pounds gross, pays a $75.00 fee for the power unit and $30.00 for the trailer, a total of $105.00. In addition, due to operational differences, it is more than likely that the combination unit will travel more miles in the year than the higher fee solo unit. Certainly, with fees appropriately adjusted, a single fee for the pulling unit based on the maximum gross weight to be carried and pulled would simplify administration for both State and truck operator without adversely affecting revenues, and would correct for the inequalities mentioned.

A proposed annual fee scheduled based on the cost of providing highways for vehicles of different sizes and weights as developed in Chapter 5 is given below. Basic calculations may be found in Table 6-4. This is based on the assumption that present fuel taxes will remain as now in effect. Any adjustment of fuel tax rates would require a proportional adjustment of these proposed rates.

The analytical process by which present revenues were expanded for the twenty-year period was based on standard statistical procedures. Needed revenues, however, originating from the incremental analysis were predicated at a mid-point projection and a system of credits. The answers do not differ greatly, but the entire discrepancy shows up in the third structure taxes recommended in Schedules and Tables 6-2 and 6-4A, discussed later in this chapter. Since the mid-point projection is probably more accurate, the ability to provide all funds by the financial schemes herein outlined would be contingent on adopting the recommended tax schedules. Present revenues, as referred to earlier in this report and hereafter, should probably be amended to read, "present revenues that would be produced from recommended tax schedules." To preserve the present structure entirely, however, would not lead to a large deficit in required funds.

Table 6-2

Total Gross Weight of Solo Truck or Combination Pulling and Trailing Unit (Pounds)	Recommended Annual Rate to Compensate for Cost of Providing Highways (Incremental Analysis)[1] Farm Vehicles	Commercial Vehicles
Under 6,000	$ 4.00	$ 6.00
6,000 to 8,000	5.00	16.00
8,001 to 10,000	6.00	30.00
10,001 to 12,000	7.00	36.00
12,001 to 14,000	8.00	42.00
14,001 to 16,000	10.00	48.00
16,001 to 18,000	11.00	54.00
18,001 to 20,000	12.00	60.00
20,001 to 22,000	13.00	66.00
22,001 to 24,000	14.00	72.00
24,001 to 26,000	....	100.00
26,001 to 28,000	....	125.00
28,001 to 30,000	....	150.00
30,001 to 32,000	....	175.00
32,001 to 34,000	....	200.00
34,001 to 36,000	....	225.00
36,001 to 38,000	....	250.00
38,001 to 40,000	....	350.00
40,001 to 42,000	....	450.00
42,001 to 44,000	....	600.00
44,001 to 46,000	....	700.00
46,001 to 48,000	....	800.00
48,001 to 50,000	....	900.00
50,001 to 52,000	....	1,000.00
52,001 to 54,000	....	1,100.00
54,001 to 56,000	....	1,180.00
56,001 to 58,000	....	1,260.00
58,001 to 60,000	....	1,340.00
60,001 to 62,000	....	1,425.00
62,001 to 64,000	....	1,500.00
64,001 to 66,000	....	1,575.00
66,001 to 68,000	....	1,650.00
68,001 to 70,000	....	1,725.00
70,001 to 72,000	....	1,800.00
72,001 to 74,000	....	1,875.00
74,001 to 76,000	....	1,950.00
76,001 to 78,000	....	2,050.00

Utility Trailers under 3,000 pounds (private use)	Exempt
Utility Trailers under 3,000 (commercial use)	$ 3.00
Utility Trailers 3,000 pounds to 6,000 pounds	5.00
Utility Trailers 6,001 pounds to 10,000 pounds	8.00
House Trailers	25c per foot

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[1] Exlusive of regular registration fee.

Proration of Registration Fees. Officials of the State of Montana entered into a compact with several Western States on January 1, 1956, providing for the proration or distribution of commercial truck fees among the States concerned. This proration of fees is applicable only to operators of fleets of two or more vehicles operating commercially. The States in the compact are Montana, Idaho, Washington, Oregon, California, Nevada, Colorado, Kansas and New Mexico. Montana and North Dakota entered into essentially the same arrangement.

Proration, as practiced by these States may be most easily described by use of an example. Assume that Jones Transport Company, whose principal place of business is in Montana, operates 15 truck-tractors and 15 semi-trailers in the States of Montana, North Dakota, Idaho, Washington, Oregon and California. His vehicles traveled 1,345,600 miles in 1955. The mileage was distributed among the States as follows:

Montana	28%
North Dakota	10%
Idaho	15%
Washington	18%
Oregon	17%
California	12%

If Jones were to register his entire fleet in each of those States, the proratable fees would be as follows:

Montana	$8,600
North Dakota	9,000
Idaho	1,400
Washington	9,800
Oregon	2,600
California	9,300

It must be noted that Idaho and Oregon are weight-distance fee States, with low annual registration fees. This accounts for the low proratable fees, since neither mileage taxes nor fuel taxes are under this program.

The fees due each State would then be as follows:

Montana	$ 8,600 x 0.28=$2,408
North Dakota	$ 9,000 x 0.10=$ 900
Idaho	$ 1,400 x 0.15=$ 210
Washington	$ 9,800 x 0.18=$1,764
Oregon	$ 2,600 x 0.17=$ 442
California	$ 9,300 x 0.12=$1,126

It is then necessary that Jones register a sufficient number of vehicles in each of the States to total the fees determined. The company will then receive identification plates permitting all vehicles to travel in all of the States.

Third Structure Taxes

Highway user taxes, discussed so far have included fuel taxes, registration fees and supplemental taxes on commercial vehicles. The supplemental taxes are usually included as part of the registration fee, or are at least collected at the same time as registration fees. For this reason, highway user taxation, consisting of fuel taxes, registration fees and supplemental commercial vehicle taxes, are usually termed two tax structures.

In recent years, additional taxes imposed on commercial vehicles over and above those previously mentioned, have been commonly termed third structure taxes. It might be said then, that in broadest application, third structure taxes include all taxes imposed on motor vehicles, or their use, other than registration fees and motor fuel taxes. In early years, third structure taxes were imposed primarily on for-hire carriers, but the more recent trend has been to impose them on all heavier vehicles, regardless of the class of use. These taxes take different forms, some of which are mileage taxes, referred to variously as ton-mile, weight-distance, axle-mile, and passenger-mile taxes. Others include gross receipts taxes, and special license fees assessed on a weight or capacity basis. As a result of studies made of third structure taxes in this country, the U. S. Bureau of Public Roads reported that on January 1, 1956, thirty-two States were imposing taxes which fell into one of the above categories.

Montana's Gross Vehicle Weight tax comes close to being classified as a third structure tax, since it is levied separately from the registration fee. It should be noted in this regard that the Gross Vehicle Weight fee is levied separately for the primary purpose of dedicating the revenue to State purposes, rather than tying it directly to registration which would automatically dedicate the revenue for county roads. Since the differentiation is based on administrative procedures, it is probably best to consider the Gross Vehicle Weight tax as part of a two-tax structure.

Weight-Distance Taxes. It is probable that the third structure tax that has gained most discussion in Montana has been the so-called weight-distance tax. It is advisable to differentiate a true weight-distance from other forms of mileage taxes. A weight-distance tax is a graduated mileage tax in which a specific rate per mile is established for each of several specified weight groups of vehicles. A ton-mile tax, on the other hand, is assessed at the same rate per ton-mile, against all vehicles, regardless of the size and weight of the vehicle. There are other forms of mileage taxes in use, such as the axle-mile, passenger-mile, and seat-mile taxes, imposed in several States. Normally, when we refer to the weight-mile tax, we think of the tax now in effect in the State of Oregon. A similar tax procedure is also in effect in Idaho.

In addition to weight-distance taxes in Oregon and Idaho, we find similar taxes levied in New York, in Illinois, and in North Dakota. Although the basic approach is similar in all these States, the taxes have been adjusted to fit the particular needs or policies of the States involved. In Idaho and Oregon, for example, the weight-distance taxes apply, with few exceptions, to all contract and common carriers, both passenger and freight. In Oregon, the tax is imposed on vehicles starting at 6,000 pounds gross weight, and in Idaho all vehicles over 16,000 pounds, gross. In New York, the tax applies only to freight carrying vehicles, of more than 18,000 pounds. In North Dakota, such taxes are imposed only against vehicles operating on an interstate basis, and in Illinois, the tax is completely optional to a graded weight tax.

Advantages of Weight-Distance Taxes. Many students of the problems of highway taxation have come to the conclusion that weight-distance taxes, which might also be called highway-use taxes, can be imposed against heavier groups of vehicles in such a manner as to produce an equitable allocation of tax burdens among the vehicles. It is argued that a tax graduated only according to weight falls more heavily on the low-mileage operator than on the high-mileage operator with an identical vehicle, while a properly scheduled highway-use tax makes automatic allowance for these differences in mileages. It also can be pointed out that a tax operated on the basis of ton-miles alone takes no account of those cost factors of highways which are incurred entirely for the benefit of larger and heavier vehicles. This is true, of course, only where the charges for each ton-mile of use are an equal amount, regardless of vehicle size or weight. A correctly scheduled highway-use tax can be graduated to allow for additional costs occasioned by heavier vehicles.

In addition to other arguments in favor of highway-use taxes, it could be noted that such taxes provide a convenient method of charging a fair share of highway costs to non-resident vehicles. Highway-use taxes, like fuel taxes, provide at least a semblance of apportioning tax payments to the States in which the vehicles travel. If universally adopted, such tax schedules might result in less occasion to provide multiple taxation of vehicles in interstate operation, and could displace proration procedures now in effect.

Disadvantages of Weight-Distance Taxes. Most opponents to the highway-use tax will agree, in theory, that it provides a fair apportionment of costs among the users, but usually deny that such a tax can be properly administered within the limit of reasonable administrative costs. They also point out that considerable evasion of the tax is possible, especially among certain users, and further, that those taxpayers who do comply are saddled with an unduly high compliance cost in relation to the fees owed.

Administration Cost. There is little question that it is more costly to administer a tax which is collected on a mileage basis than it is to collect the same total revenue on an annual basis. The question then arises whether it is better to make the tax more equitable with a mileage tax and high administration costs, or less equitable with an annual fee and low administration costs. This is a matter which will have to be left to the decision of the lawmakers of any particular State.

The degree of administration cost increase of the use tax over an annual fee is difficult to appraise. In Montana a fee of 5 percent of the annual gross vehicle weight charge is provided, ostensibly as an administration cost, for the counties collecting the fee. This amounted to about $120,000 in 1955, and will probably be nearer $140,000 in 1956. Additional costs amounting to about $30,000 per year are occasioned by the Highway Department in the administration of this law and other undefinable costs are assumed in the operation of the Highway Patrol, Highway weighing stations, and others. In the State of Oregon, it is stated that the cost of collecting the weight-distance tax amounts to about a 4.4 percent of total collections per year. It is unquestionably true that this cost, if the tax were on an identical basis, would be on a higher percentage ratio in a State like Montana, where fees collected would be substantially less in the aggregate and the method of collection might be more difficult. In addition to the reported Oregon collection cost, there are also indirect costs including the Highway Patrol and Weighing stations which are not insignificant.

In a report to the Bureau of Public Roads four States estimated total weight-distance tax receipts and administrative expenses for the year 1954 as follows:

State	Receipts	Administrative Expense	
		Amount	Percent
Florida	$ 750.000	$ 48,172	6.4
New Mexico	1,482,200	328,955	22.2
New York	13,800.000	2,070,000	15.0
Oregon	12,200,000	538,340	4.4

Certainly there is a wide variation. Perhaps the high cost of administration in New Mexico had a bearing on the repeal of this type tax in that State in 1955. Also, as mentioned previously, the Oregon figure probably does not include many indirect costs of control which could reasonably be charged to this tax function.

During the initial stages of such a taxation program, the costs might be expected to be high. This would be caused by necessary establishment of weighing stations and ports of entry as well as organization of suitable collection and auditing procedures.

Tax Evasion. The second complaint about weight-distance, or highway-use taxes, is the opportunity given for evasion. It is declared that the large operator has little chance for evasion, since his operation is sufficiently large to warrant adequate auditing procedures and since the operator, himself, is normally of the more reliable type. There has been a study of evasion of the weight-distance tax in the Oregon administration. The original study was made by Stanford Research Institute in 1954, and resulted in the summary statement as follows:

"In the course of the study an effort was made to localize and describe any evasion which could be determined in the reporting of mileage tax to the Public Utilities Commissioner. The help of the directly interested parties as well as others was solicited both as to the character of such evasion and as to methods by which an overall estimate of the revenue loss could be made. Few suggestions were forthcoming of either type. The composite picture offered as to the nature of 'the evader' showed him to be a small trucker operating on a shoestring in Oregon or coming into the State from outside with a single combination on an itinerant haul. However, the total loss of revenue from such evasion could not be described in very large terms, even if these individual truckers were flagrant in their avoidance of tax liability.

"A suggestion was made as to possible evasion by private carriers as a group and the 'dropping' of mileage in city pick-up and delivery service. The latter could not be evaluated because it involved extensive interviewing of carriers, test checking of speedometers, or similar techniques. However, these are methods which are available to PUC auditors, and it is believed that a practical, common-sense approach on their part will minimize any important loss in this type of operation. Although a special effort was made to check movements of private operators, away from their own metropolitan or city area, this disclosed no substantial unreported mileage. It must be admitted, however, that the small amounts involved require a refined analysis and more accurate estimates of city mileage than were available. Nevertheless, it is clear that as a group these private carriers are 'responsible,' in the PUC sense, and have established businesses in which trucking is only a minor element. However much they complain about the tax, they would not ordinarily fail to report any special trips across the State, particularly with the ever-present possibility that a weighing or an observation might disclose such extra mileage.

"The percentage of revenue loss due to evasion in March or April, 1954 was about 4.4 percent. Due to the short period which could be studied, this is not a precise figure but should be viewed as merely indicative of the evasion encountered in the early part of 1954. It must also be emphasized that very little of this evasion is of a type beyond the reach of a sound audit program. Auditing of carriers' accounts has generally recovered a net of about 5 percent of the total motor vehicle revenue collected by the PUC, or more than the evasion estimated here. Audits undoubtedly recover substantial amounts due to plain errors in reporting, which could not be evaluated. Nevertheless, it can hardly be said that this analysis has brought to light any new evasion which is beyond the reach of the auditing program. Even though evasion were as high as 10 percent and the audits recovered no more than at present, it would mean a net loss to the State of only about 5 percent of all truck-mile tax revenue.

"From this study it appears that evasion is encountered in the following operations:

"1. Carriers whose mileage is too small to represent substantial revenue or who are themselves too marginal to continue operating in the face of normal payments.

"2. Out-of-State, 'hit-and-run' operators, who may be beyond the reach of the State in collection of their delinquent account, but who cannot later return to Oregon without risk of apprehension.

"3. Random examples of what is probably unintentional evasion on the part of established, responsible carriers, the correction of whose errors makes up a part of the recovery from audits."

Western Highway Institute of San Francisco, an engineering and research association financed primarily by commercial vehicle interests in the West, made a critical analysis of the functioning of the Oregon weight-distance tax in 1955. This report reviewed the previous Stanford Research Institute report, and made the following summary and conclusions:

"Evidence establishes that PUC audits do not verify reported tax liability in relation to the basic factor of miles traveled. It is therefore impossible to conclude whether administration in Oregon is more efficient than in other jurisdictions where it is generally recognized that accountability is considerably less than claimed by Oregon officials.

"It is recognized that the PUC has developed practical approaches to the problem, utilizing assistance from other state and local agencies and being content with office reviews of tax reports, thereby keeping direct administrative costs at a reasonable level. It is obvious, however, that these approaches do not allow complete accountability of tax liability and leave open avenues for escapement by certain classes of taxpayers if they care to use them.

"In the case of those carriers who, because of other business requirements, must keep accurate mileage records, the system gives optimum accountabliity consistent with administrative costs. While carriers in this class pay a substantial part of total transportation taxes, there remain thousands of small carriers whose true tax liability is not established by audit. The resultant aggregate effect on revenue to the State may be significant. To the extent that tax liability is avoided by this latter group of carriers, such equity as may exist in Oregon's motor vehicle tax structure is disrupted. If avoidance were extensive, it follows that the approach results in discriminatory incidence of tax responsibility.

". . . PUC regulations prescribe maintenance of records for substantiation of tax liability, but office audit procedure depends fundamentally on a system of observed vehicle movements. Auditors may have access to carrier records which, insofar as complete, may be used to verify reported mileage, but all facts indicate that only limited use is made of such records.

"What is of most importance is the fact that **a PUC audit does not attempt to verify reported mileage,** a basic factor in determination of tax liability. A PUC audit attempts mileage verification by checking reported trips against vehicle observation reports, and then only insofar as applicable or possible. Since a high percentage of mileage is not reported by individual trips, inadequacy of the procedure for checking reported mileage is obvious. Consequently, as supported by the record, misplaced taxes detected by such an audit are predominantly derived from errors in preparation of tax reports.

". . . Careful analysis of the SRI report reveals that only a limited amount of mileage was verified and that by use of questionable procedures. Remaining reported mileage was accepted as corrected . . . . Western Highway Institute believes that the following conclusion still appear to be applicable:

"1. Numerous channels exist through which Oregon's transportation taxes may be misplaced or avoided entirely, if not detected by PUC audit.

"2. Since it is impossible to demonstrate reliability for any of the available estimates of avoided taxes, their magnitude remains unknown.

"3. The undetermined magnitude of avoided taxes must be considered significant, inasmuch as existing PUC audit procedures do not allow verifications of reported mileage."

As a result of the variation in analyses and conclusions, an exchange of letters was made between the Stanford Research Institute and Western Highway Institute, attesting in some respects the inadequacy of the Stanford approach to the question of evasion of this tax. It is believed that the Stanford Research letter is of sufficient interest to be reproduced in part here.

"The findings of the Stanford Research Institute report should not be considered as a final quantitative evaluation of the magnitude of tax evasion or the efficiency of tax administration under the Motor Transport Code in Oregon. Rather, the report was intended to present an analytical procedure by which attempted evasion might be detected, and to demonstrate the application of that procedure. The magnitude of evasion shown in the report is not to be interpreted as the maximum amount which might exist; rather, it represents an evaluation of the amount that could be estimated from available vehicle observation coverage based on a number of assumptions. We believe that with the necessary number of vehicle observations properly classified by highway, road and street systems to give correct weight for all classes of operations, the analytical procedure would allow detection of gross attempted evasion. Selective auditing of basic operator records under procedures recommended in our report would then be available for verification of reported mileage."

The problem of a highway use-tax evasion is serious. Probably evasion by the itinerant trucker is the most difficult to over come. As in most cases of evasion of responsibility, the only method of control is a stern law and rigid policing and enforcement until the violator complies with the law or discontinues operation. This may be costly, but it is fair.

Cost to Taxpayer. The cost of taxpayer compliance with the provisions of a weight-distance tax are cited by its opponents. It must be recognized that from the operator's standpoint, cost of compliance is inseparable from the tax itself. It is merely another cost of doing business.

It would seem from information available on larger highway carriers that there is a considerable cost consciousness and operating records of vehicles and movements are kept by these carriers in some detail. Also, certain records are required by regulations of the Interstate Commerce Commission for Interstate operators. In a recent survey in Oregon it is reported one carrier with an annual weight-mile tax responsibility of $660,000 isolated compliance costs at about $8,300 for 1954. This is a cost of only 1.4 percent. Other smaller carriers estimated monthly costs of compliance in Oregon at $200 to $300 per month. A little less than one man's full time. This could be a substantial compliance problem where total annual tax responsibilities are small.

Since the matter of compliance cost is closely allied to the size of the carrier's operation, it is reasonable to ask, "Just what size operators might be brought under a highway use-tax?" On a national basis, it is estimated that 52 percent of all trucks are singly owned, 22 percent of the remainder are owned in fleets of 4 or less. In Montana, the ownership of trucks, as reflected in registration statistics shows about 33 percent of all vehicles are trucks as opposed to the national average of 17 percent. This would indicate even broader percentages of singly owned vehicles. Many of these small trucks could be eliminated from a highway use-tax by judicious use of flat fees in lower weight groups and the establishment of highway use fees starting at say, 24,000 pounds gross weight.

In this connection, it should be noted that the Oregon Weight-Distance tax is levied on vehicles as light as 6,000 pounds gross excluding farm vehicles and some others, while similar taxes in Idaho

Table 6-3

		Transportation Taxes	
Fee Payment Group	Number of Permits	Total	Average Per Permit
0 to 50	8,946	$ 178,178	$ 19.92
51 to 100	2,834	208,125	73.44
101 to 500	4,640	1,047,119	225.67
501 to 5,000	1,472	1,831,277	1,244.08
5,001 to 20,000	103	923,917	8,970.00
20,001 to 50,000	14	395,684	28,263.10
50,001 to 500,000	15	1,620,999	108,066.00
	18,024	$ 6,205,299	$146,862.21

and New York start at 16,000 and 18,000, respectively. The Idaho and New York procedures unquestionably eliminate large numbers of singly owned vehicles.

The Oregon exclusion of trucks under 6,000 pounds probably accounts for one-half of all trucks in the State. One-half of the remaining trucks are registered at 24,000 pounds, or less, gross weight. These vehicles between 6,000 and 24,000 pounds gross weight account for only 11.5 percent of all the revenue under the weight-mile tax in that State. Thus, if all trucks of 24,000 pounds gross weight and under were excluded, the State would eliminate three-fourths of all trucks and suffer a revenue loss of only 11.5 percent. This loss could be made up by flat fee charges. It is probable that this procedure would eliminate many administration problems without serious loss of revenue and without gross destruction of equity which could be kept in line somewhat by annual fees in these weight categories.

The placing of light weight vehicles on a flat fee rather than a mileage basis introduces certain inequities, but a glance at Table 6-3 gives an indication of the small amount of revenue that was realized from some of the smaller permit holders in Oregon in 1951.

Table 6-3 indicates that of the 18,000 permit holders analyzed, nearly one-half paid less than $20.00 per year. A study the same year indicated collection costs of about $18.50 for each permit, leading to the conclusion that cost of collection and administration may have just about used up all revenue from this group of operators. The higher rates established by Oregon since that time would have helped this situation in some degree but even with substantial change it would have to be accepted as an uneconomical operation in the lower weight groups.

Operators do have a justified complaint if compliance costs become unduly burdensome. Much of the force of this objection can be overcome if the law establishing highway use-taxes is written to keep compliance costs at a minimum. As noted, scheduling of rates into the very low weight groups is not economical for carrier or State. A law that requires separate records for pulling units and for trailers is neither simple to comply with nor to administer. A law requiring the keeping of records as to load carried and a distinction between carried load, empty weight and gross weight is not simple. Some states have fallen into the trap of these undue complications. The simplest procedure of all is, of course, the application of the law to significant weight brackets with consideration of only three factors:

1. Gross maximum weight of vehicle or combination load as recorded at time of registration.
2. Miles traveled.
3. A fixed fee per mile for the established weight category in "1" above.

Such a procedure does not appear to be fair to the vehicle which travels empty. It is, in most cases, however, because in establishing the rate per mile, empty mileage is taken into account. This tends to reduce the charged rate. Also, in determining the rate for a particular gross weight category, it is the average operating weight that is used. Thus the rate established takes into account empty mileage and loads less than the maximum. Stated another way, if charges were not made for empty hauls, then the rate could not take average operating weight and empty mileage into account and the entire rate structure would be higher for any loaded haul. The end results could be about the same except that the three-step procedure outlined above is somewhat more simple for compliance and administrative purposes.

In summary, the principal objections to a highway use-tax are:

1. High cost of administration.
2. High incidence of evasion of tax.
3. High cost of compliance by the operator.

These can be overcome in a degree by good management, by rigid enforcement and taxpayer education, and by simplification of procedures in assessment of the tax and reporting techniques.

Rates for a Highway Use Tax. If a highway use tax is to be installed in Montana, it is important to both the State and the truck operator that the rates be fairly determined. An extensive analysis of the portion of costs of highways which can be fairly assessed against vehicles of different sizes and weights has been conducted. The analysis was described in Chapter 5. Rates proposed and shown on Table 6-4 are based on the assumption that present fuel tax rates will remain as now in effect—7 cents, gasoline; 9 cents, diesel. Any adjustments of fuel tax rates would require proportional adjustment of this schedule.

The rates on Tables 6-4 and 6-4A are based on the incremental analysis of costs incurred by each vehicle. This is probably the lowest defensible rate. There is nothing to say that higher rates, reflecting benefits beyond costs incurred, should not be levied if legislative policy should so direct. A higher rate schedule would be effected by the use of ton-mile allocation—a procedure used by several States in determining user responsibilities. A ton-mile allocation was discussed in Chapter 5 and compared with the incremental allocation. If the rates on the attached schedule appear too low to satisfy legislative intent, they could be scaled upward toward the ton-mile allocation rate schedule. Perhaps a compromise between the two, incremental analysis as the lowest and ton-mile as the highest, would be in order, if agreement cannot be reached on the schedule shown on Table 6-4A.

It will be noted that the schedule fee for farm vehicles is considerably lower than for a similar weight commercial vehicle. According to data available, these vehicles use local roads for a large percentage of their travel. Since the incremental studies found little weight responsibility in this local system, the assignment of weight costs to these vehicles was accordingly at a minimum. In fact, it was so small that the normal registration and fuel taxation of these vehicles actually paid their entire responsi-

TABLE 6-4

CONVERSION OF HIGHWAY USER RESPONSIBILITY TO ANNUAL CHARGES AND MILEAGE FEES

REGISTERED G.V.W. AND VEHICLE TYPE	FUEL TYPE	(1) COST RESPON-SIBILITY Per Vehicle Mile (MILLS)	(2) COST RESPON-SIBILITY Per Vehicle Mile (Smoothed) (MILLS)	(3) MILES Per Gallon of Fuel	(4) AVERAGE ANNUAL MILES Per Vehicle (1966)	(5) ANNUAL REGISTRATION FEE CREDIT Per Vehicle Mile (@$10 Per Yr.) (MILLS)	(6) FUEL TAX CREDIT Per Vehicle Mile (7¢÷MPG) (MILLS)	(7) REMAINING RESPON-SIBILITY Per Veh. Mile Flat Fee & Mileage Charges (MILLS)	(8) REMAINING RESPON-SIBILITY Per Veh. Mile Per Cwt. (Col. 7÷GVW/100) (MILLS)	(9) AVERAGE RESPON-SIBILITY Per Vehicle Per Cwt. (Col.8 X Col.4) ($)	(10) WEIGHTED AVERAGE ANNUAL CHARGE Per Vehicle Required ($)	(11) CREDIT Per Vehicle Mile (Col.10 X GVW / Col. 4 X 100) (MILLS)	(12) REMAINING MILEAGE RATE Fuel Tax Vehicles (Col.8-Col.10) (MILLS)	(13) MILEAGE RATE Fuel Tax Vehicles (Smoothed) (MILLS)	(14) REMAINING MILEAGE RATE Non-Fuel Tax Vehicles (Col.7-Col.10) (MILLS)	(15) MILEAGE RATE Non-Fuel Tax Vehicles (Smoothed) (MILLS)
PASSENGER CARS																
4000 POUNDS AVERAGE	G	5.862	5.86	14.80	8860											
COMMERCIAL TRUCKS																
6000 POUNDS OR LESS	G	7.913	7.44	10.80	3224	3.102	6.481	0	0	0	1/ ~~0.30~~ 0.10					
8000	G	9.767	9.02	9.35	15993	0.625	7.487	1.655	0.0207	0.331	1/ ~~0.30~~ 0.20					
10000	G	12.896	10.60	8.32	17765	0.563	8.413	3.920	0.0392	0.696	0.30					
12000	G	13.895	12.17	7.59	11923	0.839	9.223	3.833	0.0319	0.380	0.30					
14000	G	14.129	13.75	7.02	6977	1.433	9.972	2.724	0.0195	0.136	0.30					
16000	G	14.773	15.33	6.55	9345	1.070	10.687	3.016	0.0189	0.188	0.30					
18000	G	14.811	16.91	6.12	12010	0.833	11.438	2.540	0.0141	0.169	0.30					
20000	G	17.988	18.49	5.78	15445	0.647	12.111	5.230	0.0262	0.405	0.30					
20000	D	17.988	18.49	6.92	15445	0.647	13.006	4.335	0.0217	0.335	0.30					
22000	G	19.785	20.06	5.55	15517	0.644	12.613	6.528	0.0297	0.461	0.30					
22000	D	19.785	20.06	6.78	15517	0.644	13.274	5.867	0.0267	0.414	0.30					
24000	G	22.008	21.64	5.25	7054	1.418	13.333	7.257	0.0302	0.213	0.30					
24000	D	22.008	21.64	6.48	7054	1.418	13.889	6.701	0.0279	0.197	0.30					
26000	G		23.22	5.11	10585	0.945	13.698	8.577			0.30	7.368	1.209	2.8		
26000	D		23.22	6.26	10585	0.945	0	22.275			0.30	7.368			14.907	16.9
28000	G		24.80	4.82	17565	0.569	14.522	9.709			0.30	4.782	4.927	4.0		
28000	D		24.80	6.07	17565	0.569	0	24.231			0.30	4.782			19.449	18.6
30000	G		26.38	4.64	16474	0.607	15.086	10.687			0.30	5.463	5.224	5.2		
30000	D		26.38	5.91	16474	0.607	0	25.773			0.30	5.463			20.310	20.3
32000	G		27.95	4.49	15185	0.659	15.590	11.701			0.30	6.322	5.379	6.5		
32000	D		27.95	5.75	15185	0.659	0	27.291			0.30	6.322			20.969	21.9
34000	G		29.53	4.34	14321	0.698	16.129	12.703			0.30	7.122	5.581	7.7		
34000	D		29.53	5.64	14321	0.698	0	28.832			0.30	7.122			21.710	23.7
36000	G		31.11	4.20	12968	0.771	16.667	13.672			0.30	8.328	5.344	9.0		
36000	D		31.11	5.48	12968	0.771	0	30.339			0.30	8.328			22.011	25.3
38000	G		32.69	4.06	12778	0.783	17.241	14.666			0.30	8.921	5.745	10.2		
38000	D		32.69	5.35	12778	0.783	0	31.907			0.30	8.921			22.986	27.0
40000	G		34.27	3.96	15583	0.642	17.677	15.951			0.30	7.700	8.251	11.4		
40000	D		34.27	5.25	15583	0.642	0	33.628			0.30	7.700			25.928	28.7
42000	G		35.84	3.88	28932	0.346	18.041	17.453			0.30	4.355	13.686	12.7		
42000	D		35.84	5.15	28932	0.346	0	35.494			0.30	4.355			31.139	30.3
44000	G		37.42	3.78	48000	0.208	18.519	18.693			0.30	2.750	15.943	14.0		
44000	D		37.42	5.05	48000	0.208	0	37.212			0.30	2.750			34.462	32.0
46000	G		39.00	3.69	49500	0.202	18.970	19.828			0.30	2.789	17.039	15.2		
46000	D		39.00	4.95	49500	0.202	0	38.798			0.30	2.789			36.009	33.7
48000	G		40.58	3.60	51100	0.196	19.444	20.940			0.30	2.818	18.122	16.4		
48000	D		40.58	4.85	51100	0.196	0	40.384			0.30	2.818			37.566	35.3
50000	G		42.16	3.52	52600	0.190	19.886	22.084			0.30	2.852	19.232	17.7		
50000	D		42.16	4.79	52600	0.190	0	41.970			0.30	2.852			39.118	37.1
52000	G		43.74	3.46	54200	0.185	20.231	23.324			0.30	2.878	20.446	18.9		
52000	D		43.74	4.70	54200	0.185	0	43.555			0.30	2.878			40.677	38.7
54000	G		45.31	3.39	55700	0.180	20.649	24.481			0.30	2.908	21.573	20.1		
54000	D		45.31	4.62	55700	0.180	0	45.130			0.30	2.908			42.222	40.4
56000	G		46.89	3.32	57500	0.174	21.084	25.632			0.30	2.922	22.710	21.4		
56000	D		46.89	4.54	57500	0.174	0	46.716			0.30	2.922			43.794	42.1
58000	G		48.47	3.26	58800	0.170	21.472	26.828			0.30	2.959	23.869	22.7		
58000	D		48.47	4.49	58800	0.170	0	48.300			0.30	2.959			45.341	43.8
60000	G		50.05	3.20	60300	0.166	21.875	28.009			0.30	2.985	25.024	23.9		
60000	D		50.05	4.44	60300	0.166	0	49.884			0.30	2.985			46.899	45.4
62000	G		51.63	3.11	61900	0.162	22.508	28.960			0.30	3.005	25.955	25.1		
62000	D		51.63	4.38	61900	0.162	0	51.468			0.30	3.005			48.463	47.1
64000	G		53.20	3.04	63500	0.157	23.026	30.017			0.30	3.024	26.993	26.3		
64000	D		53.20	4.31	63500	0.157	0	53.043			0.30	3.024			50.019	48.8
66000	G		54.78	3.01	65000	0.154	23.256	31.370			0.30	3.046	28.324	27.7		
66000	D		54.78	4.27	65000	0.154	0	54.626			0.30	3.046			51.580	50.5
68000	G		56.36	2.99	65000	0.154	23.411	32.795			0.30	3.138	29.657	28.8		
68000	D		56.36	4.22	65000	0.154	0	56.206			0.30	3.138			53.068	52.1
70000	G		57.94	2.94	65000	0.154	23.810	33.976			0.30	3.231	30.745	30.1		
70000	D		57.94	4.17	65000	0.154	0	57.786			0.30	3.231			54.555	53.8
72000	G		59.52	2.89	65000	0.154	24.221	35.145			0.30	3.323	31.822	31.3		
72000	D		59.52	4.12	65000	0.154	0	59.366			0.30	3.323			56.043	55.5
74000	G		61.09	2.85	65000	0.154	24.561	36.375			0.30	3.415	32.960	32.6		
74000	D		61.09	4.08	65000	0.154	0	60.936			0.30	3.415			57.521	57.2
76000	G		62.67	2.80	65000	0.154	25.000	37.516			0.30	3.508	34.008	33.8		
76000	D		62.67	4.02	65000	0.154	0	62.453			0.30	3.508			58.945	58.8
78000	G		64.25	2.76	65000	0.154	25.362	38.734			0.30	3.600	35.134	35.1		
78000	D		64.25	3.99	65000	0.154	0	64.096			0.30	3.600			60.496	60.5
OVER 78000	G	For each 2000 pounds over 78000 pounds add 1.5 mills for fuel tax vehicles														
OVER 78000	D	For each 2000 pounds over 78000 pounds add 1.9 mills for non-fuel tax vehicles														

1/ Annual fee adjusted for lowest weight groups to bring more in line with calculated responsibility.

Table 6-5
MONTANA FACT FINDING COMMITTEE
ON HIGHWAYS, STREETS AND BRIDGES

Estimated Personal Property Taxes Levied in Montana 1954 1/

	On Motor Vehicles		On All Other Personal Property		Total	
	Amount	Percent	Amount	Percent	Amount	Percent
Beaverhead	$ 36,372	12.9	$ 245,783	87.1	$ 282,155	100
Big Horn	46,566	12.9	315,263	87.1	361,829	100
Blaine	42,567	16.2	219,838	83.8	262,405	100
Broadwater	17,769	16.2	91,711	83.8	109,480	100
Carbon	36,752	18.2	164,515	81.8	201,267	100
Carter	15,474	10.7	128,478	89.3	143,952	100
Cascade	252,835	18.9	1,082,321	81.1	1,335,156	100
Chouteau	58,641	18.1	264,280	81.9	322,921	100
Custer	55,183	23.5	179,877	76.5	235,060	100
Daniels	29,568	21.1	110,520	78.9	140,088	100
Dawson	53,794	22.1	188,628	77.9	242,422	100
Deer Lodge	55,389	23.2	182,887	76.8	238,276	100
Fallon	21,136	16.2	108,938	83.8	130,074	100
Fergus	69,594	16.5	351,401	83.5	420,995	100
Flathead	147,751	29.3	355,397	70.7	503,148	100
Gallatin	99,433	22.5	342,883	77.5	442,316	100
Garfield	14,860	10.6	124,285	89.4	139,145	100
Glacier	43,209	19.7	177,051	80.3	220,258	100
Golden Valley	7,459	12.8	51,440	87.2	58,899	100
Granite	12,602	14.5	74,055	85.5	86,657	100
Hill	84,317	24.2	263,638	75.8	347,955	100
Jefferson	16,339	22.5	56,091	77.5	72,430	100
Judith Basin	20,417	13.1	134,926	86.9	155,343	100
Lake	56,714	25.0	169,906	75.0	226,620	100
Lewis and Clark	87,959	18.6	385,351	81.4	473,310	100
Liberty	31,294	21.4	114,791	78.6	146,085	100
Lincoln	56,317	32.1	119,027	67.9	175,344	100
Madison	29,864	15.2	166,677	84.8	196,541	100
McCone	32,496	18.7	141,465	81.3	173,961	100
Meagher	11,637	29.5	27,744	70.5	39,381	100
Mineral	11,565	30.8	25,915	69.2	37,480	100
Missoula	158,634	27.1	425,101	72.9	583,735	100
Musselshell	23,223	18.0	105,544	82.0	128,767	100
Park	50,592	23.7	163,003	76.3	213,595	100
Petroleum	6,873	11.8	51,483	88.2	58,356	100
Phillips	38,277	13.8	239,640	86.2	277,917	100
Pondera	49,839	20.2	196,656	79.8	246,495	100
Powder River	15,511	11.1	124,326	88.9	139,837	100
Powell	30,353	21.4	111,632	78.6	141,985	100
Prairie	13,426	15.3	74,516	84.7	87,942	100
Ravalli	68,056	23.9	215,888	76.1	283,944	100
Richland	64,890	23.5	211,495	76.5	276,385	100
Roosevelt	83,842	24.6	257,371	75.4	341,213	100
Rosebud	22,771	11.2	180,607	88.8	203,378	100
Sanders	33,090	18.2	148,696	81.8	181,786	100
Sheridan	43,979	19.1	186,053	80.9	230,032	100
Silver Bow	212,872	21.8	762,829	78.2	975,701	100
Stillwater	27,391	21.4	100,834	78.6	128,225	100
Sweetgrass	16,198	12.1	117,343	87.9	133,541	100
Teton	60,362	18.7	262,272	81.3	322,634	100
Toole	53,288	20.7	204,465	79.3	257,753	100
Treasure	9,047	15.0	51,433	85.0	60,480	100
Valley	79,500	18.9	342,217	81.1	421,717	100
Wheatland	13,108	14.0	80,320	86.0	93,428	100
Wibaux	14,114	18.1	63,942	81.9	78,056	100
Yellowstone	247,521	20.9	933,000	79.1	1,180,521	100
Total	$2,992,628	19.1	$11,975,748 2/	80.9	$14,968,376	100

1/ Estimates based on values and levies reported in the 16th biennial report of the State Board of Equalization. Actually all figures would be somewhat larger as levies for city purposes are not included. City estimates would be difficult to establish as there is no reasonable method of arriving at the amount of personal property located within cities.

2/ This figure includes Livestock, $3,778,392; Mining Machinery, $311,631; Manufacturing Machinery, $925,689; Drill Rigs, etc.,$236,057; Bank Stocks, $669,875; Household Furniture, $842,351; Farm Machinery, $1,434,442; Other Machinery, $294,876, Airplanes, $14,906; Goods-Wares, $2,230,807; Furniture-Fixtures, $499,567; Solvent Credits, $337,418; Agricultural Products, $292,338; Phone Lines, $1,890; Various Properties, $105,509.

Table 6-4A

Total Gross Weight of Solo Truck or Combination Pulling and Trailing Unit	Annual Flat Fee		Additional Fee Per Mile of Operation (No Credit for Empty or Partial Loads.)	
	Farm Vehicles	Commercial Vehicles	Schedule A (Vehicles Paying Montana Fuel Tax)	Schedule B (Vehicles Not Paying Montana Fuel Tax)
(Pounds)	$	$	(Mills)	(Mills)
Under 6,000	4.00	6.00	......	......
6,001 to 8,000	5.00	16.00	......	......
8,001 to 10,000	6.00	30.00		......
10,001 to 12,000	7.00	36.00	......	......
12,001 to 14,000	8.00	42.00	......	......
14,001 to 16,000	10.00	48.00	......	......
16,001 to 18,000	11.00	54.00	......	......
18,001 to 20,000	12.00	60.00	......	......
20,001 to 22,000	13.00	66.00	......	......
22,001 to 24,000	14.00	72.00		......
24,001 to 26,000	....	78.00	2.8	16.9
26,001 to 28,000	....	84.00	4.0	18.6
28,001 to 30,000	....	90.00	5.2	20.3
30,001 to 32,000	....	96.00	6.5	21.9
32,001 to 34,000	....	102.00	7.7	23.7
34,001 to 36,000	....	108.00	9.0	25.3
36,001 to 38,000	....	114.00	10.2	27.0
38,001 to 40,000	....	120.00	11.4	28.7
40,001 to 42,000	....	126.00	12.7	30.3
42,001 to 44,000	....	132.00	14.0	32.0
44,001 to 46,000	....	138.00	15.2	33.7
46,001 to 48,000	....	144.00	16.4	35.3
48,001 to 50,000	....	150.00	17.7	37.1
50,001 to 52,000	....	156.00	18.9	38.7
52,001 to 54,000	....	162.00	20.1	40.4
54,001 to 56,000	....	168.00	21.4	42.1
56,001 to 58,000	....	174.00	22.7	43.8
58,001 to 60,000	....	180.00	23.9	45.4
60,001 to 62,000	....	186.00	25.1	47.1
62,001 to 64,000	....	192.00	26.3	48.8
64,001 to 66,000	....	198.00	27.7	50.5
66,001 to 68,000	....	204.00	28.8	52.1
68,001 to 70,000	....	210.00	30.1	53.8
70,001 to 72,000	....	216.00	31.3	55.5
72,001 to 74,000	....	222.00	32.6	57.2
74,001 to 76,000	....	228.00	33.8	58.8
76,001 to 78,000	....	234.00	35.1	60.5
Over 78,000	....	35 cents per CWT	Add 1.5 mills for each additional 2,000 pounds	Add 1.9 mills for each additional 2,000 pounds

bility, based on this incremental approach. It is believed, however, that it is unreasonable not to provide some weight charge for these vehicles and to this extent the incremental analysis may be deficient. For this reason, a charge approximating 20 percent of the weight charge for normal commercial vehicles has been included for these farm vehicles up to 24,000 pounds.

Size and Weight Controls. In passing it should be noted that maximum gross weight for 2-axle trucks should be 24,000 pounds unless proved otherwise that the vehicle can be legally loaded. It is improbable that a typical 2-axle truck can be loaded legally to 28,000 pounds since this would require 10,000 pounds on the front axle, an unlikely situation. Allowance of registration to 28,000 pounds for such vehicles may have much to do with the relatively frequent overloaded axles on such trucks found on secondary roads. A total maximum gross weight of two-axle trucks in the order of 24,000 pounds would be more logical.

Property Tax on Motor Vehicles. One feature which has not been touched upon is property tax on motor vehicles in Montana. This is a personal property tax collected at time of vehicle registration. All of the tax goes to such general purposes as the levy may have been made for in county and city governments, school districts, and other special taxing districts. As such, it is not a highway user revenue, but its payment is a necessary prelude to licensing and in the public's mind must usually be considered as a part of the cost of licensing a vehicle. The average tax per vehicle in 1954 was about $10.00. Naturally there is great range among taxing districts because of differences in levies and assessed values. This range is greatest in trucks where value is also less standardized from county to county. The variation in amount of tax for identical vehicles in several taxing districts is surprising.

All of this variation has led to the suggestion that the fee be standardized on a statewide level and that the funds be returned to the local units on some basis of apportionment. This is a special study of itself and has not been explored in detail by the Fact Finding Committee staff. Table 6-5 shows the portion of all personal property tax that is collected from motor vehicles. It is substantial.

The point is raised here particularly because of the impact on commercial vehicles. States such as Oregon, Idaho, Ohio, and New York, leaders among third structure tax states, do not levy personal property taxes on motor vehicles. Registration fees are in lieu of all other ad valorem taxes in those States.

During the 1956 year, for the first time, county treasurers have supplied information to the Registrar of Motor Vehicles on the amount of personal property tax assessed against all vehicles. The Highway Planning Survey has assembled some of these data, as they relate to trucks and trailers, into useable form. Incomplete data based on information furnished on 14,000 trailers and 38,000 trucks and tractor-trucks indicate the following average personal property taxes levied against such vehicles in 1956.

Table 6-6

AVERAGE ANNUAL PROPERTY TAX

Gross Weight (pounds)	Trucks	Trailers
Under 6,000	$ 11.94	$ 1.16
6,001 - 8,000	13.51	4.74
8,001 - 10,000	13.08	4.29
10,001 - 12,000	13.80	7.81
12,001 - 14,000	13.23	4.39
14,001 - 16,000	13.05	8.06
16,001 - 18,000	13.89	10.67
18,001 - 20,000	14.67	9.83
20,001 - 22,000	18.08	19.75
22,001 - 24,000	25.80	22.00
24,001 - 26,000	31.13	10.00
26,001 - 28,000	38.77	21.31
28,001 - 30,000	36.24	21.62
30,001 - 32,000	47.78	39.56
32,001 - 34,000	33.73	28.77
34,001 - 36,000	69.64	29.55
36,001 - 38,000	103.91	10.71
38,001 - 40,000	104.86	15.50
40,001 - 42,000	130.54	35.28
42,001 - 44,000	97.00	....
44,001 - 46,000	99.60	....
All Groups	15.67	5.51

On the basis of these averages it is estimated that trucks may have paid a total of $1,600,000 in personal property taxes in 1956 and trailers about $125,000 in the same year.

While this table shows an upward trend in taxes as groups increase in weight there are some noticeable exceptions. Also, the average may be misleading as there are most certainly some jurisdictions and some vehicles for which taxes would be substantially greater or substantially less than the average. A tabulation showing range of taxes within each weight group would be more revealing.

It is improbable and possibly not desirable that such taxes could be eliminated in Montana. However, their very existence is a factor which must be considered in the overall cost of operation of a vehicle and their effect should not be overlooked.

Summary.

Methods of taxing for highways have been covered in general and with some reference as to how they apply to Montana. In summary we find that Montana taxes property for road purposes to almost the legal limit at the county and city levels. We also find that the fairly modest registration fee on all vehicles goes to counties exclusively, with the minor exception of a portion of such fees going to Butte, Anaconda, and Walkerville. Next is the fuel tax of 7-cents on gasoline, and 9-cents on diesel fuel, all dedicated for State highway purposes. The fuel tax rates are as high as any in the nation, although a good number of more populous States levy such tax at similar rates.

Next discussed were special fees on commercial vehicles which are levied on a gross vehicle weight annual fee basis in Montana with certain allowance for farm vehicles and others because of assumed less use of the highways. This gross vehicle weight law also has provision for quarterly fees to allow for seasonal usage by certain operators.

Finally, the third structure taxes in effect in several States were discussed, covering both the advantages and disadvantages of this type tax, and some methods by which disadvantages might be mitigated.

If Montana is to have an equitable tax structure, it must be based on the cost of providing services for the various highway users. If we start from the premise that the current 7-cents per gallon gasoline tax and the basic $10 registration fee fairly distribute the cost responsibility of passenger cars we can then move to consider the commercial vehicle. The differences between the sum of annual registration fees and fuel tax payments of commercial vehicles and their cost responsibilities outlined in Chapter 5 may be considered use tax deficiencies. The deficiencies can form the basis for a schedule of compensatory rates for such vehicles. The rate schedules can be set either on an annual fee basis, called a gross vehicle weight tax, or a mileage basis, called a highway use tax. Both type schedules have been presented. The mileage rates have been developed in two schedules, one before fuel tax credit and one in which full credit has been allowed. The schedule in which no fuel tax credit has been allowed could be used for non-gasoline powered vehicles and vehicles buying any type fuel outside of Montana. The second schedule could be used for vehicles purchasing gasoline within the State. The advantage to both diesel operator and State administration would, of course, be the resultant elimination of monthly "use fuel tax" reports for operators under the mileage tax. If the mileage tax were then put on a quarterly basis the operator would be able to eliminate three reports he now makes for the one new report required. A substantial reduction in reporting!

Need For A Motor Vehicle Department

With due regard for the diligence and efforts of State officials, Montana has suffered in the past and is apparently suffering today from inadequate control of the motor vehicle. The building of good highways takes specialists, engineers. The control and taxation of the rolling stock on our highways also takes specialists. These would be administrators, capable police forces, tax auditors, safety experts, and others, all closely coordinated in their activities. The theory that these functions can be better administered by highway engineers who are primarily busy with highway construction, places an undue, and frequently unwanted burden on an organization designed principally for construction functions.

Appendix B entitled, "A Motor Vehicle Department for Montana," discusses the possible organization of such a State office with control, supervision, enforcement, and taxation authority over all rolling stock operating on the highways and streets of the State. The establishing of such an office is perhaps the greatest stride forward that Montana could make in its overall highway problem. It is almost certain that the loose division of authority among the several departments including county treasurers, Highway Department, Registrar of Motor Vehicles, Board of Equalization, Highway Patrol, and the Reciprocity Board is costing the State in lost revenue and unwarranted duplication of effort. While the establishment of a Motor Vehicle Department in Montana would be a big step forward under present tax procedures, it is believed it would be essential to efficient management of any highway use tax.

In States such as Oregon, Idaho, and New York, the administration of the mileage tax has been delegated to strong State departments. This is particularly true in Idaho where the tax is under the control of the Department of Law Enforcement. This department is also responsible for all Highway Patrol activities, Registration of Motor Vehicles, operators' licenses, financial responsibilities and title laws. In New York, the administration of the use tax is under the direction of the State Tax Commission with sweeping power of enforcement. In Oregon the law is administered by the Public Utility Commission, but in this State the PUC has numerous field offices and broad control over vehicles coming under mileage taxes for such other purposes as rate control and supervision. It also has close liaison with the State Police, the Highway Department, especially the weighmaster section, and the newly established Motor Vehicle Department. Observing normal practice in Oregon leaves one with the conclusion that not many years will pass before this mileage tax may be put under the control of the new Motor Vehicle Division in that State.

Ports of Entry

Ports of entry appear to be a necessity in the operation of highway use tax in a State like Montana. Both Colorado and Idaho have found such operations profitable in administering such taxes. Oregon has avoided the establishment of Ports of Entry as such, but the functions of "Ports" are carried on otherwise. Ports of entry are expensive in operation. Montana has about 21 entrances to the State where "Ports" could be operated. Profitable operation would probably restrict this to 5 to 7 "Ports" with two or three additional "roving ports." This matter is discussed further in Appendix B. The establishment of such ports would emphasize even more the necessity for a Motor Vehicle Department for control of all such functions.

Requirements For A Highway Use Tax

If Montana wishes to install a highway use tax, it should incorporate certain features found desirable in other States. These features have been touched upon elsewhere in this Chapter but are summarized here for convenience.

1. Establish rates applicable to Registered Gross Vehicle weight only. No provision for empty movements or partial loads.
2. Have two schedules of rates, one for non-fuel tax paying vehicles, and one for fuel tax paying vehicles. Exempt highway use tax vehicles from diesel taxes and have them report under first schedule.
3. Establish appropriate flat fees for vehicles under 24,000 pounds gross weight, and exclude these vehicles from highway use tax.
4. Establish rates for power unit only at the total gross weight of power unit and trailing unit, if any.
5. All vehicles over 24,000 pounds gross should be on the same highway use tax schedule regardless of type of use.
6. Arrange for quarterly reporting of all mileage of each solo truck or power unit of a combination coming under the highway use tax law.
7. Provide for optional trip permits for itinerant vehicles.
8. Prohibit all reciprocity on highway use tax. Reciprocity and/or proration should be continued on all flat fees.
9. Organize a Motor Vehicle Division to incorporate all functions of Registrar of Motor Vehicles, Highway Patrol, Fuel Tax collection and refund sections of Board of Equalization and commercial vehicle taxation including reciprocity and Port of Entry operation.
10. Provide procedures for bonding of operators under highway use tax similar to bonding now required by special fuels act.

A highway use tax bill has been drawn in accordance with requirements of Section 4 (c) of Chapter 99, Laws of 1955. This bill provides for the above features and is included here in Appendix C.

TRANSPORTATION NEEDS DO NOT END AT POLITICAL BOUNDRIES

To Each His Needs, brings a uniform system of roads for all to Enjoy.

Courtesy of the U. S. Bureau of Public Roads

Chapter 7

ALLOCATION OF HIGHWAY USER REVENUES AMONG ROAD SYSTEMS AND GOVERNMENTAL UNITS

State lines, financial district boundaries, city limits, and county lines are merely political boundaries. They do not have significance in any realistic appraisal of highway needs and of themselves should not be prime factors in the allocation of highway revenues. Highway needs are area-wide. In fact, the most realistic area is the entire country. This has long been recognized by the Federal government and fortunately so. Without this realization, the sparsely settled areas of the West would have fallen far behind in the development of roads while more populous States would have been given the greatest share of Federal funds. In broad perspective, it has to be realized and accepted that good roads in New England, for example, benefit Montana in some degree and good roads in Montana benefit New England. The benefits cannot be measured, but they are there, nevertheless. As an example, we might take copper. Good roads anywhere promote vehicle sales. With 20 pounds, or more, of copper going into each new vehicle, how much does Montana, the Copper State, gain from an increase in sales of two million cars? Yes, everyone gains from good roads, wherever they are.

Apportionment of road revenues among various jurisdictions is always a difficult problem. In reviewing procedures in other States, as well as Montana, we can see where existing formulae are frequently the result of historical accident or pressures in the legislative assembly. In many fields of governmental effort such distribution would lead to waste of public funds. Ordinarily, this has not been true in highways because there have never been enough revenues, and no matter where the revenues are distributed, the need is still greater than the resources.

It is obvious that in the days when highways were financed almost entirely from local property tax sources, there was no problem of apportionment. As the highway-user tax concept came into prominence, some method of apportionment frequently had to be developed since local governments cannot normally levy or collect such fees in an efficient manner. Regardless of this, the local units have frequently been left with the popular spending power, but have been divested of revenues to underwrite the spending.

If we wish to retain the local units because of their place in the democratic processes, certain adjustments have to be made because of disappearing revenues or because revenues cannot be raised consistent with established needs. Obviously if we remove all responsibility for taxes and leave only spending power, much of the advantage of safeguards in local government vanishes.

The practical problem of distribution of highway-user revenues remains to be solved. In other States, allocations to local units are based on all sorts of formulae. Some factors used have direct relation to highway needs; some, remote relation; and some, no relation whatsoever. Tables 7-1 and 7-2 show factors used in distribution of motor fuel to local units by the several States. The most frequently used are mileage, registration, and population, although "equal division" and "area" are not far behind. Population is by far the predominant factor in distribution to cities.

While it is not shown here, many States have developed different formulae for distributing motor vehicle license revenue. Probably the principal reason for this is the fact that the registration fee universally preceded the fuel tax and was frequently levied as a local fee. Local units naturally acquired what might be termed a vested interest in these revenues. Also, since such fees are often paid to a local agency, near the owner's home, even though destined for a State office, there is frequently a conviction that a substantial portion, if not all, of that fee should remain in the local jurisdiction. These two impressions probably have much to do with 100 percent retention of registration fees by local units in Montana.

It is quite obvious that this type of thinking does not meet the demands of current motor vehicle usage. Traffic today is not related directly to domicile of the owner and registration fees should probably not be considered any differently than other highway-user revenues in apportionment procedures.

Table 7-1

Factors Used by the Various States as Bases for the Distribution of Motor Fuel Taxes To Local Rural Units of Government, as of January 1, 1950

State	Linear Mileage	Regis-tration	Popu-lation	Equal Divivsion	Area	State Highway Mileage	Sales of Motor Fuel	Tax Collec-tions	Assessed Valuation	Mis-cellaneous
Alabama				X						
Arizona			X				X			
Arkansas		X	X	X	X					
California	X	X		X						
Colorado			X			X				
Florida			X		X					X
Idaho		X								
Illinois		X								
Indiana	X	X		X						
Iowa					X					
Kansas	X			X					X	
Kentucky			X	X	X					
Louisiana								X		
Maryland	X									
Massachusetts										X
Michigan	X	X		X						
Minnesota	X									X
Mississippi		X	X		X					
Nebraska		X	X							X
New York	X									
North Dakota		X								
Ohio		X		X						
Oklahoma			X		X	X				
Oregon		X								
Pennsylvania	X									
South Carolina		X								
South Dakota									X	
Tennessee			X	X	X					
Texas	X		X		X					
Virginia			X		X					X
Washington	X	X		X						
West Virginia	X									
Wisconsin	X	X								
Wyoming			X		X				X	

Source: Highway Statistics, 1948.

Table 7-2

Factors Used by the Various States as Bases for the Distribution of Motor Fuel Taxes to Municipalities, as of January 1, 1950

State	Linear Mileage	Registration	Population	Need	Miscellaneous
Alabama			X		
Arizona			X		
California			X		
Colorado		X			
Connecticut	X				
Illinois			X		
Indiana			X		
Iowa			X		
Kansas			X		
Maine	X				
Maryland	X				
Nebraska			X		
North Carolina	X		X	X	
Oregon			X		
Pennsylvania	X				
Virginia	X				
Washington			X		
Wisconsin	X				X
Wyoming			X		

Source: Highway Statistics, 1948.

Apportionment Factors.

Miles of Road. As noted, road mileage is the most common factor in other States in apportioning revenues to rural units. This is good since road mileage probably more nearly correlates with actual highway needs than any other factor. Actually, highway needs themselves are perhaps the best measure but comprehensive data on needs are not often available, as they are this year in Montana. If all county roads were entirely similar in character of use and cost factors, mileage would be an ideal basis. Such similarity may be less fact than fiction in States with wide differences in topography, population, and land service requirements. In using mileage, one must assume that all the many cost factors that can be reflected in this measure will average out over a great number of counties to some semblance of equity.

It is probable that a mileage basis will favor rural counties over counties with large urban concentrations. This is true because roads often must be built in some form, regardless of the sparsity of population. This means more miles per person and per registered vehicle and per dollar of developed tax revenue in the rural type county.

A good feature of mileage as a factor is that it is an item readily determined and not subject to administrative adjustments. Also, as the general stature of roads improve with the years, the wide differences of need may be expected to converge, making the mileage factor more reflective of need as the years pass.

Vehicle Registrations. The use of motor vehicle registrations as a factor in revenue apportionment is widespread. It is apparently based on the assumption that the vehicles in a particular jurisdiction reflect traffic volumes. It has been noted by others that this may be a valid assumption in very large jurisdictions, but the smaller the jurisdiction, the less valid. If counties were, for example, both the taxing and the highway unit in all cases the validity would be strengthened. This is never true in Montana because all counties include some cities within their boundaries. The registration unit then includes the city area but the highway unit is restricted to rural areas. The procedure in Montana clearly benefits the rural areas of the urban type counties.

Motor vehicle registration has a number of features to recommend it as a factor in revenue apportionment. It can be based on annual statistics which can be made readily available; it can be free of administrative discretion; and it has some direct relation to highway use if not highway need. Its use in city apportionment is seldom desirable because of difficulty in gathering entirely reliable data.

Population. Population is the most frequently used factor in apportionment of revenue to cities. This is perhaps because it is a readily obtained figure from independent sources. Mileage might be a good factor in cities, too, but reliable mileage data are not always available. Also, mileage can unduly favor smaller cities with more miles per person than larger cities, but usually with less needs proportionately.

In rural areas population has little relationship to highway needs because of extensive mileage in sparsely settled areas which often create needs out of proportion to population.

Area. In Western States, with relatively large rural counties, area may have validity in apportionment procedures. It is a factor used by the Federal government in apportionment of Federal-Aid. Its effect between States, like Rhode Island and Montana, is obvious. Similar effects would be noted between some counties in Montana.

Area, of course, is established, and does not permit adjustment for administrative discretion.

Equal Distribution. Such distribution has no relation to anything tangible so far as highway needs are concerned. Accordingly, it should have no relationship to any apportionment formula except as it might apply to inducements to establish competent engineering staffs in each of several units.

Highway Needs. The best method of apportioning funds, if undue administrative discretion can be avoided, is highway needs. This is the reason for apportionment. If fairly determined at reasonable expense, this should be the measure most desirable. This is apparently the apportionment measure that will be used by the Federal government in its program of completing the 41,000 mile Interstate system. In fact, it is the only allocation that could be used when simultaneous completion is desired of a broadly distributed highway system cutting across many political boundaries.

Apportionment in Montana. The State of Montana is responsible for the construction and maintenance of all Federal Aid-Interstate and Federal-Aid Primary highways in the State, a total of almost 5,900 miles. Federal-Aid funds are available to finance 57 percent of the construction on the Primary system and 91.4 percent of the Interstate. Maintenance and administration are financed entirely from State funds.

In addition, the State has assumed responsibility for matching Federal funds available for constructing Federal-Aid Secondary highways. These highways are under administrative control of county governments and are maintained by the counties. This system amounted to a little over 4,000 miles on July 1, 1956, and was still growing.

Counties are responsible for construction and maintenance of all rural roads not on the Federal-Aid Primary and Secondary Systems, in addition to maintenance on the latter system. This leaves about 55,000 miles of county roads plus the Federal-Aid Secondary mileage of about 4,000, a total of 59,000 miles.

There are other rural roads in the State of over 6,500 miles, but these are on Federal reservations. Since they have been largely accepted as total Federal responsibility, they are being excluded from the discussion.

Cities are, of course, responsible for all streets within their limits. This totals about 1,565 miles. There is the exception of city streets which are extensions or connecting links of Primary rural highways. These latter seem to be on a catch-as-catch-can basis. Construction is usually financed on a cooperative basis. In the past, this meant that the city provided 25 percent of the cost, presumably from taxes on property. The remainder would be financed, unless on an Interstate route, with 57 percent Federal funds and 18 percent State funds. Maintenance responsibility seems indefinite, but usually what the city does not do is eventually done by the State. Cities of over 5,000 population do benefit from an allocation of Federal-Aid urban money distributed on a population basis. This amounts to about $500,000 per year in Montana.

Apportionment to Financial Districts. In 1927, the legislative assembly enacted what is known as the Highway Financial District law. This law, as amended (RCM 84-1817) specifies how Primary highway revenues shall be apportioned among the twelve districts.

The law directs that total Primary revenues shall be distributed on the basis of uncompleted mileage within each district. It implies that cost to complete factors should be included in the allocation, but it is understood that only mileage factors are used since reliable cost data have not been universally available in past years. This feature could be covered with data now available from the Automotive Safety Foundation highway needs study completed this year.

Over the years the existence of this law has occasionally permitted State officials to escape from certain pressure delegations demanding improvements by merely pointing to depleted revenues in the delegation's financial district. A business-like approach by responsible State officials, coupled with a program of public education could accomplish the same results without the hampering effect on overall development. Certainly, a geographically distributed Highway Commission, as now established by law, could go far toward the protection of all areas of the State and still stay within the realm of good business and sound administrative decision. Nevertheless, the financial district arrangement has become firmly entrenched in the highway traditions

Table 7-3

	County		City		State		Total	
	Amount (000)	Percent	Amount (000)	Percent	Amount (000)	Percent	Amount (000)	Percent
Registration Fee	$3,143	98	$55	2	$	......	$ 3,198	100
Fuel Taxes	0	....	......	....	16,217	100	16,217	100
Gross Weight Fees	118	5	......	....	2,388	95	2,506	100
Operators and Misc.	......	....	......	....	1,129	100	1,129	100
Total	$3,261	14.2	$55	0.2	$19,734	85.6	$23,050	100

of the State, and since it does have certain advantages, retention of the system with necessary modification is perhaps desirable.

Under present law the financing of the Federal-Aid Interstate system will strain the financial district law to the breaking point. This system, to be built to high standards, at proportionately high costs, and over a relatively short period of time, would cause no concern if it was located equally in all districts. Actually, it is located in only 9 of the 12 districts, and not equally in any of these. Over 75 percent of Interstate construction costs are located in 5 districts. If the law is strictly adhered to it could mean that some of these districts will get an excellent Interstate route, while little or no funds will be available for normal Primary roads. In the meantime, large blocks of revenue will go to the "non-Interstate" districts with consequent rapid development of Primary highways in those districts. The imbalance among systems created by this factor alone will be considerable.

Also, the highway needs of the Primary system as developed by the independent engineering study of the Automotive Safety Foundation in cooperation with the State Highway Department and the Fact Finding Committee has established needs entirely out of proportion to present financial district allocations. Carried to the extreme, this could only have the result of providing inadequate funds in some districts while an excess of funds could develop in others.

Financial District	Percent of Total 20-Year Constrction Needs Proposed State Highway System	1956 Fiscal Year Distribution State Construction Funds To Federal-Aid Primary System
	(Percent)	(Percent)
1	8.0	8.00
2	4.5	6.33
3	5.0	9.45
4	7.2	11.25
5	3.6	6.57
6	9.0	7.68
7	8.0	6.04
8	16.5	11.24
9	8.1	7.23
10	8.9	9.39
11	14.3	7.95
12	6.9	8.87

In the establishment of the financial district law it can be assumed that it was the intent to assure equalized improvement in highways throughout the State. It appears that the goal was actually to allocate revenues on the basis of the needs since uncompleted mileage was made the measure of allocation. As has been mentioned, incomplete mileage of itself is a very rough measure of need. The best measure is need or cost to complete. Montana now has, for the first time, a comprehensive statement of highway needs of the entire State with segregation between systems and districts. This needs analysis, as prepared by the Automotive Safety Foundation, could be made the basis for allocation among the districts and systems—essentially the same procedure of allocation which has been endorsed by Congress in the allocation of Interstate Funds among the States. Montana's needs analysis can and should be kept up to date and could thereby provide a continuing basis for allocation.

Apportionment to State and Local Units. Highway user taxes in Montana consist of annual registration fees, Gross Vehicle Weight fees on commercial vehicles, and fuel taxes. All registration fees are dedicated to county use with the minor exception of license fees collected from residents of Butte, Anaconda, and Walkerville, which are returned in part to those cities. These registration fees are in payment for a State-wide license for which is a plate is issued by the State Registrar, actually at no cost to the counties. By any definition, they must be considered as a State impost. The Gross Vehicle Weight fees are levied as State imposts and divided 95 percent to the State and 5 percent to the counties. Fuel taxes go 100 percent to the State.

Table 7-3 shows percentage of net highway user imposts collected in Montana in 1955, and the distribution to the three units of government.

Funds expended by the State within cities (State funds only, not including Federal-Aid) and matching funds for Federal-Aid Secondary projects alter this picture somewhat. Table 7-4 shows these expenditures for the year ending June 30, 1956.

Table 7-4

	State Funds	Local Funds	Federal Funds	Total
	(000)	000)	(000)	(000)
Cities	$ 37	$147	$ 270	$ 454
Counties	2,445	....	2,612	5,057
Total	$2,482	$147	$2,882	$5,511

If the State funds are considered as coming entirely from fuel taxes, this would change the picture in Table 7-4 to a total allocation to local units somewhat as shown in Table 7-5.

A motor vehicle use study conducted in Montana in 1954 indicated the following distribution of travel among the various highway systems, urban and rural.

Table 7-5

	Counties		Cities		State		Total	
	Amount (000)	Percent	Amount (000)	Percent	Amount (000)	Percent	Amount (000)	Percent
Registration Fees	$3,143	98	$55	2	$	......	$ 3,198	100
Fuel Taxes	2,445	15.1	37	0.2	13,735	84.7	16,217	100
Gross Weight Fees	118	5	......	....	2,388	95	2,506	100
Operators and Misc.	......	....	......	....	1,129	100	1,129	100
Total	$5,706	24.8	$92	0.4	$17,252	74.8	$23,050	100

TABLE 7-6

	Percentage of Travel	Percentage of 20-Year Program Costs	Percentage of Highway User Imposts Received
State Primary	56.3	55.8	74.8
County Roads[1]	28.3	37.3	24.8
City Streets	15.4	6.9	0.4

[1] Assuming Federal-Aid Secondary routes as county roads.

Highway user revenues, properly assessed, are normally considered to be earned on road systems in direct proportion to travel. This might not be precisely true because of possible greater use of fuel per mile and stop-and-go city driving and other factors, but it does serve as a rough approximation. If this tenet is accepted as true, it is obvious from Table 7-6 that there is little relationship in Montana between the source of road user revenue and the ultimate return of revenue to the several systems. In reviewing the total highway plant, however, it becomes immediately apparent that return of revenue on the basis of the situs of earnings can easily put the plant out of balance. With this point in view, it can be seen that Montana's more serious problem is that there is little relationship between the amount of road user revenues returned to each of the road building agencies and the proportion of total needs within those jurisdictions. This is also shown in Table 7-6.

Apportionment Among Counties. — Montana's formula for distributing state-wide motor vehicle registration fees among the counties could be said to be based on the place of domicile of the vehicle. This is true, of course, only to the extent that motor vehicle owners do not go "shopping" among nearby counties for more favorable personal property tax situations. Due to the inconvenience of the "shopping" procedure, it is doubtful if this practice is widespread.

In any case, the collecting county retains the fee. Obviously, this benefits the county with large urban concentrations. This is without direct benefit to the urban dweller, as the revenues, for the most part, will be spent in rural areas. The State-wide percentage distribution of these revenues among the counties is shown in Table 7-7. Comparison is shown on the same table for distribution of county road needs and county road mileage. The latter two percentage distributions do not include Federal-Aid Secondary figures. The current distribution bears only vague relationship to needs.

Federal-Aid Secondary System

Montana's method for distributing Federal-Aid Secondary funds and also, in effect, a certain portion of State motor-fuel tax revenue is based on a four dimension formula (See RCM 84-1817) giving equal weight to the factors of land area, rural population, rural road mileage, and rural valuation. This results in a percentage distribution to counties as shown on Table 7-8. Percentage of needs of the proposed Federal-Aid Secondary system are also shown. Similar data on the existing 4,000 mile system were not readily available, but there is an interesting lack of correlation between needs of the Study Secondary system on one hand, and allocation of revenue on the other in some of the counties.

TABLE 7-7

County	Percent of 1955 Registration Revenue and Gross Weight Fees	Percent of All County Road Miles— Secondary and Local Maintained	Percent of Local County Road Needs
Beaverhead	1.2	1.9	1.8
Big Horn	1.5	1.8	1.8
Blaine	1.2	2.6	2.1
Broadwater	0.6	0.9	1.1
Carbon	1.4	1.4	1.5
Carter	0.5	1.5	1.3
Cascade	8.1	2.7	3.4
Chouteau	1.9	4.4	4.4
Custer	2.0	1.9	1.8
Daniels	0.9	1.5	1.4
Dawson	2.0	2.1	2.0
Deer Lodge	2.0	0.4	0.7
Fallon	0.7	1.8	1.9
Fergus	2.5	3.6	3.3
Flathead	5.4	1.4	2.4
Gallatin	3.6	1.9	2.3
Garfield	0.4	2.8	2.3
Glacier	1.6	1.2	1.1
Golden Valley	0.3	1.1	1.0
Granite	0.5	0.6	0.7
Hill	2.7	3.5	2.6
Jefferson	0.6	1.3	1.4
Judith Basin	0.7	2.1	2.1
Lake	1.9	1.5	1.4
Lewis and Clark	3.6	2.2	2.7
Liberty	0.8	1.6	0.8
Lincoln	1.6	1.2	1.5
Madison	0.9	1.5	1.9
McCone	0.8	2.5	2.1
Meagher	0.4	0.7	0.7
Mineral	0.5	0.3	0.5
Missoula	5.5	1.1	2.7
Musselshell	0.8	1.5	1.5
Park	2.0	1.3	1.6
Petroleum	0.3	0.9	0.8
Phillips	1.2	3.1	2.5
Pondera	1.4	2.1	1.8
Powder River	0.5	1.8	1.2
Powell	1.2	1.0	1.3
Prairie	0.4	1.6	1.5
Ravalili	2.0	1.1	1.3
Richland	1.8	2.5	2.5
Roosevelt	2.0	2.7	2.0
Rosebud	0.9	2.4	2.2
Sanders	1.1	1.4	1.6
Sheridan	1.3	2.1	1.8
Silver Bow	5.9	0.7	1.2
Stillwater	1.0	1.7	1.4
Sweet Grass	0.7	1.1	1.1
Teton	1.6	2.8	2.9
Toole	1.5	2.3	1.7
Treasure	0.3	0.6	0.5
Valley	2.0	3.1	2.6
Wheatland	0.5	0.8	0.9
Wibaux	0.4	1.1	1.1
Yellowstone	10.9	3.3	4.3
Total	100.0	100.0	100.0

Table 7-8

County	Percent of FAS Fund Allocation (current)	Percent of Program Costs Proposed FAS System First 10 Years	Percent of Mileage Proposed FAS System
Beaverhead	2.3	1.8	2.0
Big Horn	2.4	2.3	2.1
Blaine	2.5	3.1	3.4
Broadwater	0.9	0.5	0.6
Carbon	2.0	1.3	1.3
Carter	1.5	1.6	2.0
Cascade	2.7	3.2	2.8
Choteau	3.4	4.9	4.7
Custer	1.7	2.2	2.2
Daniels	1.4	1.2	1.4
Dawson	1.7	2.4	2.3
Deer Lodge	0.8	0.4	0.4
Fallon	1.2	1.4	1.5
Fergus	3.1	3.2	3.3
Flathead	3.6	2.1	1.7
Gallatin	2.4	2.8	2.1
Garfield	1.9	1.3	2.2
Glacier	1.8	2.0	1.8
Golden Valley	0.8	0.7	1.0
Granite	0.9	0.5	0.6
Hill	2.8	3.2	4.0
Jefferson	1.0	1.2	0.8
Judith Basin	1.6	1.0	1.3
Lake	2.0	1.5	1.6
Lewis and Clark	1.9	2.6	2.3
Liberty	1.4	1.3	1.8
Lincoln	2.1	0.8	1.1
Madison	1.8	1.4	1.1
McCone	1.9	2.3	2.0
Meagher	1.2	0.6	0.8
Mineral	0.6	0.4	0.4
Missoula	1.8	1.4	0.9
Musselshell	1.3	0.9	1.1
Park	1.5	1.2	1.1
Petroleum	0.8	0.5	0.7
Phillips	2.5	2.9	3.1
Pondera	1.9	2.1	2.2
Powder River	1.6	1.8	2.5
Powell	1.5	1.1	0.7
Prairie	1.0	1.8	1.3
Ravalli	1.9	2.2	1.3
Richland	2.0	1.8	1.9
Roosevelt	2.2	1.8	2.4
Rosebud	2.4	3.4	3.2
Sanders	1.7	2.6	1.8
Sheridan	1.9	2.2	2.4
Silver Bow	0.8	0.9	0.7
Stillwater	1.6	1.9	1.7
Sweet Grass	1.1	1.0	1.0
Teton	2.2	2.0	2.2
Toole	1.8	1.8	2.5
Treasure	0.6	0.9	1.0
Valley	3.2	3.3	3.5
Wheatland	1.0	0.5	0.7
Wibaux	0.7	1.0	0.9
Yellowstone	3.7	3.8	2.6
Total	100.0	100.0	100.0

These comparisons again lead us to the conclusion that if figures are available, allocation of State-wide revenue should be based on needs, or some factor closely associated. If actual needs are not used in the rural allocation, mileage factors could possibly be given more weight.

In the highway study of needs in Montana, the Automotive Safety Foundation has presented convincing arguments that the Secondary system should become a county responsibility for construction and maintenance. The existing system consists of about 4,000 miles. The proposed system consists of over 12,000 miles. These are the most important local routes in each county, traffic and service wise, and to remove them from county jurisdiction would leave only the least important roads under county control. The remaining roads would still require county management and engineering service, but with the major reason for engineering services departing with the Secondary system, many counties would find the continuance of such services difficult if not impossible. In addition, home rule of local and feeder type roads has been a long established and probably desirable practice in this country.

The Federal-Aid Secondary system has been constructed with Federal-Aid and State funds. In 1956 this resulted in an expenditure of about $3,650,000 of State collected funds. This was not enough to match all available Federal funds. If the entire system is to become a county construction responsibility it would seem reasonable that the State should continue to aid in the matching of Federal funds since current revenues have been designed on that basis. If Federal funds continue at present volumes it will require about $4,200,000 State funds each year to match the Federal amount of $5,600,000.

Under these procedures, there has to be a method of allocation of both Federal funds and State funds among the counties. The best method would be to use the formula of needs as expressed in the second column of Table 7-8. This would have the tendency of bringing the entire system to completion at substantially the same rate in each county. The alternative, of course, would be to use the current formula expressed in column 1 of Table 7-8. This would be reasonably satisfactory, but over the years some counties would receive too much, others too little.

Total average annual costs on the Secondary system and other county roads, will amount to $29,500,000 over the next 20 years. Only about $9,800,000 will be financed by Federal-Aid and State matching funds mentioned above. This leaves about $19,700,000 annually unfinanced except as provided by local sources. To meet these total annual needs of $19,700,000 counties will have available only about $14,000,000 in property taxes and in registration fees in an average year, over the next 20-year period. This leaves a deficit of $5,700,000 annually. Since local source property taxes have been considered at the maximum leviable in this calculation, this appears to leave only motor vehicle user revenues as a source if Montanans are to have these secondary and local systems to use in the foreseeable future.

It is suggested that this amount of $5.7 million, average per year, could be supplied from current State Highway Fund sources if judicious long term financing could be provided to stretch out the demands on that fund. If, in addition, the predicted $4.3 million in registration funds could also be brought into this fund on a State-wide basis there would be a fund of about $10 million annually which could be returned to the several counties on the basis of need. A portion of this fund, say one-third, could be distributed on the basis of needs on the Secondary system as shown on Table 7-8, column 2, and the remaining two-thirds on the basis of local road needs as expressed in column 3 of table 7-7. This procedure, combined with prudent long range bond financing discussed in Chapter 4 could bring all rural systems, Interstate, Primary, Secondary and local to appropriate standards within a 20-year period at substantially current financing rates if all counties would supplement the program by levying maximum allowable property taxes for road and bridge purposes. This latter situation could be encouraged by a method of matching State and local funds similar to the current State-Federal relationships. All of these procedures could be administered under the direction of a suggested State-Aid Division of the Highway Department. This could establish uniformity throughout the various counties and assure the road user of getting full value for his dollars, wherever spent. The operation of such a State-Aid Division is discussed in detail in the engineering report.

If it is considered desirable to place responsibility for Federal-Aid Secondary route construction in the counties, it will be necessary that each county have, or arrange for, a competent engineering staff. Only a few Montana counties are adequate in this regard now. Engineering services can be acquired on a consulting basis, by cooperative arrangements between counties, by State forces on a reimbursement basis or gratuitously, or by actual employment of a county engineer. The latter is preferable, but not always possible.

In any case, the obtaining of engineering services costs money. The development of these services in counties could be promoted by the establishment of a State fund of $280,000 annually as the first demand on the State-Aids mentioned above. This fund could be made available in an amount of $5,000 for each county which had arranged for competent engineering services, with the type of service to be determined by the county, and the competence to be passed upon by the State Highway Engineer as a prerequisite to reimbursement. If this type of inducement is to be directed to the counties, the amount of $280,000 annually would necessarily have to be set aside as an equal distribution among counties before the needs or current formula allocation were applied.

Possible Apportionment to Cities. Actually a large segment of city street needs would be taken care of if the State were assigned total responsibility, construction and maintenance, for the urban extensions of the Primary system. Amounts for these functions have been included as a State obligation in the engineering study. As noted in Chapters 3 and 4, this leaves a deficiency in city revenues of only $789,000 per year for the next twenty years. If procedures of credit financing could be adopted, as discussed under Financial Plan III, in Chapter 4, this deficiency could be taken care of through allocation of State revenues of $789,000 per year. If Plan III or a sutiable alternate is not adopted, it is clear that some method of city aid is necessary.

As mentioned there has been very little highway user revenue distributed to Montana cities. This situation has developed because the rural problem has been so urgent and because Federal-Aid funds, available in the most part for rural expenditures, have demanded all available user revenues, except registration fees, for matching purposes. If the cities were to wait to make their claim for road user revenues until all rural systems are completed, it is feared that they would never make that claim. So far as can be determined, no road system in the country has ever been built to "final completion." There is always more to do. In the meantime, the situation in cities worsens and new sources of revenue cannot be developed within ad valorem tax limitations. The obvious solution would seem to be the levying of a road user tax exclusively for city purposes. This would have to be at State level.

One point should be made clear. The fact that a State collects certain highway user revenues and returns some of these to local units does not of itself make these revenues "State aids." It merely makes the State, which is in the best position to make uniform assessment and collection of such fees, the financial agent of the local units for this purpose. In distributing the funds, the State is merely assuring that they go to the jurisdiction, central or local, which can use them most effectively for highway purposes.

It has been suggested that the seven-cent gas tax for Montana is a maximum. This may be an unwarranted conclusion when one realizes what a little cost per mile the assessment of a seven cent tax actually represents, in round figures about ½ cent per mile of operation for a passenger car as compared to total cost of operating such a vehicle of possibly 10 cents. The cost of the highway is frequently less than ten percent of the total cost of operation. Actually, a gas tax of several cents more than we now pay would still be a transportation bargain if the revenue were dedicated for highway or street improvement.

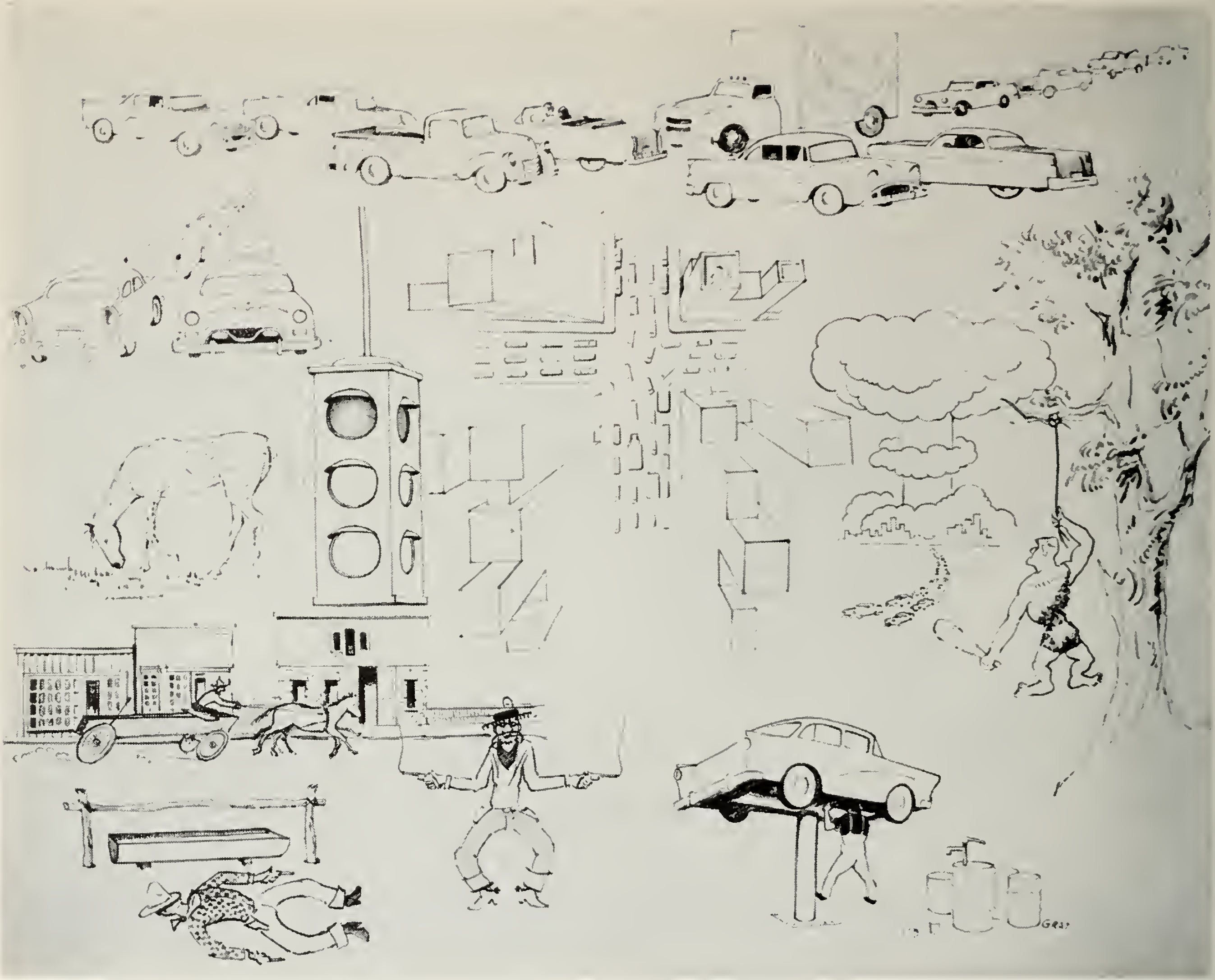
It is not unreasonable then to suggest that a ½ cent gas tax could be levied to be dedicated exclusively for city street purposes. Such a tax could be levied efficiently only at the State level but proceeds could be allocated among the cities on a quarterly basis on an established formula, preferably population. Population is suggested since it is a universally determinable figure. The annual proceeds of a ½ cent levy would provide about $1,150,000 under current travel volumes and after refunds. If this amount were returned to the cities on the basis of population, it would provide revenue at the ratio of about $3.40 per capita, based on a 1950 census.

Any city could easily calculate possible revenue based on this per capita figure of $3.40. Figures for the larger cities of the State would be about as shown below with increases over the years as fuel usage rises.

Anaconda	$ 38,350
Billings	108,450
Bozeman	38,600
Butte	113,300
Glendive	17,900
Great Falls	133,650
Havre	27,550
Helena	59,900
Kalispell	33,200
Lewistown	22,400
Livingston	26,200
Miles City	31,500
Missoula	76,600
Cities under 5,000 population	422,400
TOTAL	$ 1,150,000

Provisions would, of course, have to be made to assure the funds were expended for streets, preferably construction. This could be accomplished through the suggested State-Aid Division of the Highway Department.

This procedure would provide road user funds for a unit of government which has been excluded from these funds in the past. It would bring a measure of fairness to the city dweller who has contributed well, if not willingly, for rural roads for many years. It would also provide the funds to meet the needs of the cities, along with currently available local revenue sources, over the next 20-year period and bring the city street situation along at about the same pace as rural, State and county roads.



TO WHAT END PROGRESS

Travel on central business streets was about as fast 90 years ago by horse as it is today by motor vehicle.

Illustration by: **Charles Gray**

Chapter 8

CONCLUSIONS

Certain conclusions are an inevitable result of a study such as this. Such remarks as are given in this Chapter are provided in a sincere effort to be of greatest service to the Committee. The conclusions stated are those of the writer. They are not given in the form of recommendations as it is presumed that the Committee will formulate certain recommendations to the legislature based on this report and the companion engineering report, "Moving Ahead on Montana Highways."

Montana has not neglected its highway problem. It has had to move at a slow pace at times, but with a substantial acceptance of a relatively high user tax structure it is apparently ready to tackle the long-range problem of bringing its entire highway transportation plant, urban and rural, local road and through-highway, to desirable standards in the next generation. This can be accomplished through full utilization of current and future Federal-Aid and accumulated backlogs, continuation of general property tax for local roads and streets at near maximum permissible levels, continuation of highway user taxes at current magnitudes, and possible judicious use of credit financing of some highways. The latter will hasten the day when the rural dweller will be out of the mud and the city dweller will be out of the muddle. To this recipe would have to be added the establishment of adequate management and engineering procedures, State and local, cooperation through a State-Aid Division of the Highway Department, and finally, allocation of revenues to the 180 units of government responsible for roads and streets on the basis of "needs" above and beyond their own local resources.

It should be made clear that the use of credit financing is by no means mandatory in this plan. It would merely speed the day when adequate highways would be available for all. That facilities of all types are acquired today and paid for tomorrow is a well accepted procedure of our economy. That is the way we acquire our homes, their furnishings, our clothing, our automobiles, and frequently even the fuel we put in those vehicles. Alongside of these short-life investments, the highway plant looks like a natural for credit financing.

It is pleasing to note the long-range financial outlook for highways in this State if the people continue to be willing to accept and pay for the higher per vehicle mile costs of highways occasioned by low per mile usage. In this connection, an allocation of costs between highway users and non-highway users has been made. This allocation has been designed to fit the historical pattern of such cost distribution because of the greater feasibility of these procedures. The second step in cost allocation has been spreading the costs among the several types of highway users on the basis of cost of providing the facility. This was done through a ton-mile analysis and an incremental analysis. The latter analysis seems to be most valid and usually has the broadest engineering acceptance.

The costs allocated by the incremental method have been established into what we might term a three-tax structure on highway users.

1. A basic registration fee of $10 per vehicle, a traditional fee in Montana.
2. A fuel gallonage tax, assumed to be 7c on gasoline and 9c on diesel fuel, the current rates.
3. A supplemental commercial vehicle tax schedule based on:
    (a) A flat gross vehicle weight fee similar to existing procedures, but with revised rates, or
    (b) A combination of a flat gross vehicle weight fee only for vehicles under 24,000 pounds gross, and a flat fee plus mileage fees for vehicles of 24,001 pounds gross weight and over.

It seems axiomatic that the first two schedules, registration and fuel tax, must continue at current rates. They are at a rate that substantially returns the cost of providing facilities for passenger cars from that type vehicle. Fees proposed under the third structure, gross weight fees, or combination of gross weight and mileage fees, are believed to be as equitable as can be developed. Either schedule will develop the total costs considered to be the responsibility of these commercial vehicles. The pros and cons of the two approaches are believed to be covered in sufficient detail in Chapter 6 to permit interested persons to draw appropriate conclusions. It is probable, however, that the establishment of workable mileage fees would demand the prior establishment of a Motor Vehicle Department or Commission for the State.

There is considerable discussion of the possible establishment of a Motor Vehicle Department in Appendix B. Such a department would have many advantages aside from the administration of a possible highway use tax, and could reduce the possibility of evasion of current taxation as well as provide improved and consolidated service to the one-third million motor vehicle owners in the State.

The chapter on allocation of highway user revenues among road systems is a most important one. Highway needs and highway revenues do not balance within the current tax structures of the State, the counties, or the cities within the next twenty years. There are indications of substantial surpluses at State levels, a near even break in cities and notable deficits at the county level in this total period. Also, there is clear indication that allocation of funds among financial districts will get out of order because of the concentration of Interstate needs in 5 districts and the actual non-existence of this system in 3 of the 12 districts. There is also evidence that current allocations of primary funds are not on a needs basis which would lead to the long-term result of too much money in some districts and not enough in others. The obvious conclusion is that if revenues for the long pull can be allocated to State, financial districts, counties and cities, and systems within those units, on the basis of need (and on a matching basis to assure full effort at the local level) the end result will be a total highway plant of full benefit to all.

Proposed laws for the establishment of a Motor Vehicle Department, Ports of Entry, and a highway use tax are included in Appendix C. If the highway use tax measure is not accepted, a revision in the fees under the present Gross Vehicle Weight law could be in order. Also, other laws would have to be enacted to establish appropriate State-Aid techniques if allocation of revenues on the basis of need is considered appropriate and if development of county and city road building agencies is desired.

A very important matter, probably requiring remedial legislative action in 1957, is the revision of the fuel tax law which apparently expires with the redemption of the last highway bond some time late in 1957. A permanent tax of seven cents (7c) per gallon on gasoline, and nine cents (9c) on diesel has been assumed in this study, although a discussion is also included of a possible one-half cent ($.005) per gallon increase in fuel tax for the exclusive dedication to city streets. This latter would not be necessary if the long-range (32-year) plan developed in Chapter 4 was adopted as all county, city and State needs have been included in those considerations.

Chapter 99 of the Laws of Montana, 1955, under which the Fact Finding Committee operated, specified a number of studies that should be conducted. All of these studies have been touched upon in the course of this Committee's work, but some have necessarily been covered only briefly and should probably be given more thorough inquiry in future years. One field requiring considerable detailed effort would be a highways laws study. There is broad interest in this subject at the national level and the Highway Research Board is prepared to give a considerable amount of technical assistance to such a study in any State. Efforts were made to promote such a study in Montana in 1956 and a committee representing the State Highway Commisssion, the Association of County Commissioners, and the Municipal League was actually appointed to guide this work. Due to inability to finance the costs which would have included the employment of a young attorney, it was impossible to proceed with the details of this study. It should certainly be completed as soon as possible in future years, as the present Highway organization in Montana is handicapped by indefinite legal controls.

A great deal of time was taken up in the assignment of highway costs among various beneficiaries. The specific subject of benefits to the highway user as opposed to the benefits to the land and other segments of the economy was studied at Montana State College in the Department of Agricultural Economics. This subject needs an extensive study, particularly in this State, where the motor vehicle user now appears to be paying more than his share of the total cost of highway development. This subject is suggested for an extensive study in the future, in the following comments by Professor Maurice Taylor, coordinator of the work done on this phase in this interim.

"The work done in connection with this project is not final in any sense. Expediency was extremely important because of the shortage of time and funds. The survey work done was of a cursory, pilot nature and does not give highly desirable results. In light of these shortcomings the following recommendations for continuation of the work are made:

"1. We still have only meager information regarding the effects of highway development on property values. It is suggested that a continuing project be set up to determine the effects of various kinds of highway development on rural and urban property values, both commercial and non-commercial. Such a project could be set up cooperatively among the College, the University, the State Highway Commission, and any existing interim or Fact Finding Committee. Such information would be extremely valuable, both for benefit analyses purposes and for right-of-way acquisition problems which will certainly develop in the future.

"2. We still know too little about savings in travel and transport costs over various types of surfaces and roadways. It is suggested that a study be designed to determine relative costs of transport by classes of vehicles, and by types of produce transported over various types of roadway and surface. Such data could then be used to set up budgets for various types of transport firms in estimating the effect of highway development on the income of motor vehicle users.

"3. It is recognized that improved highways result in increased economic activity and commerce for the communities served. But we

> don't know what the magnitude of the effects are. It is suggested that the framework be set up for studying the impact of highway development on general trade and commerce, perhaps at the individual community level; and for the State as a whole. Such a study would also provide valuable information for benefit analyses and for planning the general economic development and progress of the State."

The matter of allocation of revenues to the several units of government engaged in highway construction was covered in Chapter 7. This subject has been studied in detail in many of the more progressive highway States and possibly warrants additional consideration in Montana.

During studies of the Fact Finding Committee the matter of property tax on motor vehicles was discussed by many groups. It is quite obvious that vehicles of identical size and type are taxed at substantially different rates in the various counties of the State. On the other hand, the overall personal property tax on motor vehicles appears to be fairly moderate on an average basis. The suggestion has been made that since this tax is a prerequisite to registration, it should be uniform throughout the State and perhaps be levied on the basis of an excise fee. If this was done, there would be the problem of how the revenue should be distributed back to the local units now dependent on this revenue to support local services. The whole matter should probably be given a detailed review in a future study.

In 1956 the State of Montana entered into a proration agreement with eight Western States, under which fees on commercial vehicles are prorated to the States on the basis of vehicle mileage operated. This is a complicated subject. Local proponents of the procedure claim that Montana gains from these proration methods. Casual observation seems to indicate that this is true, but a complete analysis would be necessary to determine the exact amount of gain or loss. This matter should probably be a subject of legislative study.

In addition to the subjects mentioned above there are many other items which are of continuing interest to a legislative assembly concerned with operation of a State-wide highway plant, including taxation and control of finances. In order to project these studies through the years, some type of continuing legislative study group might be appropriate. If such a group is authorized, it is suggested that it continue on a financial district appointment basis, since this procedure appeared to work quite satisfactorily in the 1955-1957 interim. Financing of such a group could be arranged by an annual twenty-five cent charge on passenger cars and an ascending order of charges on commercial vehicles similar to the Fact Finding fees of 1956. This would not be a great burden on any user and the benefits over the years could be substantial.

The final conclusion is the same as appears in the preface, namely, that no study of this nature is good for all time. Reappraisal of highway needs is a continuing process. It should go on year after year to assure equitable distribution of revenues. Also, allocation of costs of highways to the several beneficiaries requires periodic review to assure continued equity. As highway use patterns change so do cost allocations. No tax structure is good for all time in a dynamic segment of economy such as the motor vehicle encompasses. The cost of such a study is immeasurably small alongside of the benefits it can foster.

Appendix A

STATISTICAL TABLES

A number of tables have been included in the general text as illustrations of specific points. Tables too bulky for text presentation or of general interest but not directly related to text material have been included in this appendix.

Number	Table Contents
1	State Receipts for Highway Purposes for Selected Years 1937-1955.
2	State Expenditures for Highway Purposes for Selected Years 1937-1955.
3	County Receipts for Highway Purposes for Selected Years 1937-1955.
4	County Expenditures for Highway Purposes for Selected Years 1937-1955.
5	County Receipts for Road Purposes 1955—Individual Counties.
6	County Expenditures for Road Purposes 1955—Individual Counties.
7	City Receipts for Street Purposes for Selected Years 1937-1955.
8	City Expenditures for Street Purposes for Selected Years 1937-1955.
9	City Receipts for Street Purposes 1955—Individual Cities.
10	City Expenditures for Street Purposes 1955—Individual Cities.
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12	City Expenditures for Functions Allied to Street Purposes 1955.
13	Direct Federal Government Expenditures in Montana for Highway Purposes for Selected Years 1937-1955.
14	Total Revenue for Highway, Street and Road Purposes in Montana for Selected Years 1937-1955.
15	Total Expenditures for Highway, Street and Road Purposes in Montana for Selected Years 1937-1955.
16	Road Tax and Debt Limit Data for Counties, 1955—Individual counties.
17	Street Tax and Debt Limit Data for Cities, 1955—Individual cities.
18	Historical and Projected Trends—Montana.
19	Estimated Apportionments of Federal-Aid and State Matching Funds Required, Fiscal Years 1956-1976, Inclusive.
20	Forecast of State Revenue for Highways, 1957-1996.
21	Forecast of County Revenue for Roads, 1957-1996.
22	Forecast of City Revenue for Streets, 1957-1996.
23	Forecast of Revenue for all Highway and Street Purposes, 1957-1996.
24	Average Annual Direct Highway Costs for 20-Year Period to Implement 10-Year Catch-up Program.
25	Average Annual Direct Highway Costs for 20-Year Period to Implement 13-Year Catch-up Program.
26	Average Annual Direct Highway Costs for 20-Year Period to Implement 20-Year Catch-up Program.
27	Projection of State Expenditures Required to Complete 13-Year Catch-up Program.
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33 Program Costs vs. Estimated Revenues for all Roads and Streets 1957-1996.

34 Estimated Vehicle Registration 1955.

35 Estimated Traffic by Systems.

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39 Travel and Weight Data.

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54 Distribution of State Highway User Receipts 1954, All States.

55 Existing Rural and Urban Mileage in All States, 1954.

56 Annual Travel on the Interstate System by Vehicle Type, Registered G.V.W. and Volume Class, 1954.

57 Annual Travel on the Study-Primary System by Vehicle Type, Registered G.V.W. and Volume Class, 1954.

58 Annual Travel on the Study-Secondary System by Vehicle Type Registered G.V.W. and Volume Class, 1954.

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Chart A-6 Operating G.V.W. vs. Registered G.V.W. (Tractors).

Chart A-7 Operating G.V.W. vs. Registered G.V.W. (All Trailers).

Table 1

STATE RECEIPTS FOR HIGHWAY PURPOSES

For Selected Years 1937-1955

Year	Fuel Tax	Highway Use And GVW Fees	Other Highway User Fees	Misc.	Federal Aid	Borrowings	Total
	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1937	$ 4,630	$	$ 265	$ 17	$ 3,497	$	$ 8,409
1941	5,468	....	342	8	2,725	....	8,543
1946	5,799	....	400	40	2,457	1,500	10,196
1950	10,415	1,661	797	92	8,218	....	21,183
1953	12,187	1,932	906	236	6,365	....	21,626
1954	13,674	2,031	1,106	141	10,777	....	27,729
1955	16,217	2,388	1,129	64	8,411	....	28,209

Table 2

STATE EXPENDITURES FOR HIGHWAY PURPOSES

For Selected Years 1937-1955

Year	Construction	Maintenance	Admin. and Misc.	Highway Patrol Registrar and Fuel Tax Collection and Refund Expenses	Debt Service	Total
	(000)	(000)	(000)	(000)	(000)	(000)
1937	$ 4,895	$ 1,721	$ 683	$ 228	$ 841	$ 8,368
1941	5,160	2,217	357	261	501	8,496
1946	4,446	3,253	662	501	1,475	10,337
1950	11,742	4,758	1,178	894	1,485	20,057
1953	10,915	5,393	1,595	991	1,658	20,552
1954	17,194	5,763	1,412	1,256	1,534	27,159
1955	17,485	4,974	1,698	1,119	1,339	26,615

Table 3

COUNTY RECEIPTS FOR HIGHWAY PURPOSES

For Selected Years 1937-1955

Year	Property Tax	Registration Fees	Other Highway User Fees	Federal-Aid	Misc.	Borrowings	Total
	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1937	$ 2,232	$ 1,250	$	$ 31	$ 46	$ 866	$ 4,425
1941	2,520	1,577	....	47	1	....	4,145
1946	3,623	1,394	....	62	173	302	5,554
1950	4,864	2,347	....	108	200	54	7,573
1953	5,362	2,819	101	256	514	....	9,052
1954	5,361	2,978	106	261	180	....	8,886
1955	5,605	3,143	118	209	155	....	9,230

Table 4

COUNTY EXPENDITURES FOR HIGHWAY PURPOSES

For Selected Years 1937-1955

Year	Construction	Maintenance	Admin. and Misc.	Debt Service	Total
	(000)	(000)	(000)	(000)	(000)
1937	$ 315	$ 2,373	$ 171	$ 1,864	$ 4,723
1941	402	2,710	201	588	3,901
1946	349	3,952	197	304	4,802
1950	820	6,304	350	79	7,553
1953	1,004	7,451	421	58	8,934
1954	861	7,470	463	50	8,844
1955	1,008	7,652	450	53	9,163

Table 5

COUNTY RECEIPTS FOR ROAD PURPOSES 1955

County	Rural Road Mileage	Property Tax	Registration and 5% G.V.W. Fees	Federal Aid	Miscellaneous Unclassified	Total
		(000)	(000)	(000)	(000)	(000)
Beaverhead	1,329	$ 112	$ 39	$	$ 1	$ 152
Big Horn	1,253	116	50	....	2	168
Blaine	2,489	110	38	....	6	154
Broadwater	818	47	18	1	1	67
Carbon	980	122	47	3	4	176
Carter	819	54	16	2	....	72
Cascade	1,330	580	265	1	6	852
Choteau	2,977	264	62	....	5	331
Custer	994	72	64	....	3	139
Daniels	1,020	63	30	....	3	96
Dawson	1,185	90	66	....	1	157
Deer Lodge	253	56	65	....	2	123
Fallon	944	61	24	....	1	86
Fergus	1,935	178	81	....	16	275
Flathead	1,324	35	176	32	3	246
Gallatin	1,204	183	118	3	7	311
Garfield	1,415	45	12	....	....	57
Glacier	1,115	149	52	....	1	202
Golden Valley	715	36	9	....	....	45
Granite	486	25	17	7	1	50
Hill	2,732	118	87	....	6	211
Jefferson	730	66	19	2	1	88
Judith Basin	992	83	23	1	4	111
Lake	910	123	62	3	1	189
Lewis & Clark	1,170	97	116	6	....	219
Liberty	1,152	144	26	....	7	177
Lincoln	1,150	63	53	58	2	176
Madison	1,208	82	30	6	1	119
McCone	1,844	87	27	....	2	116
Meagher	742	52	14	2	....	68
Mineral	449	28	14	16	3	61
Missoula	950	67	179	....	....	246
Musselshell	1,072	42	27	....	4	73
Park	718	77	65	5	3	150
Petroleum	729	17	10	....	3	30
Phillips	1,894	187	38	7	....	232
Pondera	1,192	128	46	....	1	175
Powder River	1,112	50	17	4	....	71
Powell	665	82	40	8	2	132
Prairie	724	45	14	....	1	60
Ravalli	853	92	64	13	2	171
Richland	1,199	91	57	....	1	149
Roosevelt	1,438	121	64	....	2	187
Rosebud	1,686	124	28	1	2	155
Sanders	1,056	93	36	23	16	168
Sheridan	1,486	135	44	....	5	184
Silver Bow	342	199	194	....	2	395
Stillwater	995	82	33	2	4	121
Sweet Grass	554	30	21	2	1	54
Teton	1,616	132	52	1	3	188
Toole	1,543	110	49	....	2	161
Treasure	377	27	9	....	1	37
Valley	2,648	147	67	....	1	215
Wheatland	631	40	18	....	1	59
Wibaux	633	37	13	....	1	51
Yellowstone	1,851	109	356	....	7	472
TOTAL	65,628	$ 5,605	$ 3,261	$ 209	$ 155	$ 9,230

Table 6

COUNTY EXPENDITURES FOR ROAD PURPOSES 1955

County	Construction	Maintenance	Administration & Miscellaneous	Debt Service	Total
	(000)	(000)	(000)	(000)	(000)
Beaverhead	$ 8	$ 102	$ 8	$	$ 118
Big Horn	58	92	9	....	159
Blaine	....	147	1	....	148
Broadwater	21	68	3	....	92
Carbon	19	147	13	....	179
Carter	7	52	2	23	84
Cascade	58	710	26	....	794
Choteau	157	223	10	....	390
Custer	....	119	8	....	127
Daniels	....	124	2	....	126
Dawson	25	117	13	....	155
Deer Lodge	4	118	9	....	131
Fallon	....	80	6	....	86
Fergus	....	249	6	17	272
Flathead	....	242	16	....	258
Gallatin	93	223	14	....	330
Garfield	....	49	2	....	51
Glacier	45	128	12	....	185
Golden Valley	....	43	1	....	44
Granite	....	50	2	....	52
Hill	....	208	7	....	215
Jefferson	4	79	6	....	89
Judith Basin	10	126	3	....	139
Lake	....	175	7	....	182
Lewis & Clark	....	172	10	....	182
Liberty	....	137	6	3	146
Lincoln	....	190	12	....	202
Madison	....	117	6	....	123
McCone	....	82	3	....	85
Meagher	22	43	2	3	70
Mineral	49	37	2	....	88
Missoula	19	198	30	....	247
Musselshell	12	57	3	....	72
Park	29	146	7	....	182
Petroleum	5	24	....	....	29
Phillips	111	137	3	....	251
Pondera	11	144	7	....	162
Powder River	26	37	4	....	67
Powell	....	114	10	....	124
Prairie	15	39	3	....	57
Ravalli	....	152	6	....	158
Richland	18	124	10	....	152
Roosevelt	18	172	7	....	197
Rosebud	17	102	7	....	126
Sanders	5	139	10	7	161
Sheridan	29	154	2	....	185
Silver Bow	63	317	15	....	400
Stillwater	8	115	5	....	128
Sweet Grass	5	55	3	....	63
Teton	....	164	11	....	175
Toole	....	167	6	....	173
Treasure	7	25	1	....	33
Valley	25	181	13	....	219
Wheatland	....	54	3	....	57
Wibaux	....	50	2	....	52
Yellowstone	....	336	55	....	391
TOTAL	$ 1,008	$ 7,652	$ 450	$ 53	$ 9,163

Table 7

CITY RECEIPTS FOR STREET PURPOSES FOR SELECTED YEARS 1937-1955

Year	Prop. Tax & Assessments (000)	Transfers From General Fund (000)	Road User Fees (000)	Misc. and Unclassified (000)	Borrowings (000)	Total (000)
1937	$ 781	$ 23	$ 9	....	$ 19	$ 832
1941	811	27	45	....	96	979
1946	935	6	31	....	6	978
1950	1,784	145	55	$ 101	231	2,316
1953	2,576	264	67	186	848	3,941
1954	2,528	227	71	156	514	3,496
1955	2,530	447	55	169	784	3,985

Table 8

CITY EXPENDITURES FOR STREET PURPOSES FOR SELECTED YEARS 1937-1955

Year	Construction (000)	Maintenance (000)	Administration Miscellaneous (000)	Debt Service (000)	Total (000)
1937	$ 156	$ 438	$ 32	$ 260	$ 886
1941	215	491	6	275	987
1946	86	589	32	185	892
1950	378	1,386	205	195	2,164
1953	1,486	1,913	181	703	4,283
1954	792	2,021	114	673	3,600
1955	1,007	2,184	98	754	4,043

Table 9

CITY RECEIPTS FOR STREET PURPOSES 1955

	Miles of Streets	Property Tax and Assessments (000)	Transfers From Gen. Fund (000)	Miscellaneous and Unclassified (000)	Borrowings (000)	Total (000)
Anaconda	22.4	$ 65	....	$ 1	$ 26	$ 92
Billings	103.9	263	$ 256	67	77	663
Bozeman	39.8	75	8	2	22	107
Butte	43.7	132	86	56	....	274
Glendive	21.6	70	13	18	197	298
Great Falls	137.1	286	....	37	8	331
Havre	25.3	79	1	2	....	82
Helena	82.8	201	....	5	297	503
Kalispell	36.4	140	....	3	....	143
Lewistown	27.0	36	15	....	....	51
Livingston	23.9	80	5	1	....	86
Miles City	44.2	146	18	2	....	166
Missoula	72.3	137	....	2	....	139
All Others	884.6	820	45	28	157	1,050
TOTAL	1,565.0	$ 2,530	$ 447	$ 224	$ 784	$ 3,985

Table 10

CITY EXPENDITURES FOR STREET PURPOSES 1955

	Construction	Maintenance	Administration and Miscellaneous	Debt Service	Total
	(000)	(000)	(000)	(000)	(000)
Anaconda	$ 27	$ 54	....	$ 10	$ 91
Billings	193	396	$ 25	91	705
Bozeman	48	29	11	39	127
Butte	57	225	....	1	283
Glendive	203	38	1	46	288
Great Falls	14	247	11	67	339
Havre	4	47	....	33	84
Helena	257	105	....	108	470
Kalispell	....	133	1	....	134
Lewistown	....	39	11	....	50
Livingston	....	51	....	42	93
Miles City	1	86	....	84	171
Missoula	13	127	11	4	155
All Others	190	607	27	229	1,053
TOTAL	$ 1,007	$ 2,184	$ 98	$ 754	$ 4,043

Table 11

CITY RECEIPTS FOR FUNCTIONS ALLIED TO STREET PURPOSES 1955

	Parking Facilities					
	On Street	Off Street	Street Lighting	Side Walks	Storm Sewers	Total
	(000)	(000)	(000)	(000)	(000)	(000)
General Taxes:						
Current Work	....	....	$ 157	$ 3	$ 6	$ 166
Debt Service	....	....	....	1	4	5
Special Assessment:						
Current Work	....	....	221	17	....	238
Debt Service	....	....	78	81	43	202
Appropriations From General Funds:						
Current Work	....	....	149	....	....	149
Debt Service	....	....	2	....	....	2
Proceeds of Bond Issues:						
General	....	....	....	9	....	9
Special	....	....	36	56	....	92
Parking Facility Revenues	$ 694	$ 52	....	....	....	746
Total Receipts	$ 694	$ 52	$ 643	$ 167	$ 53	$ 1,609

Table 12

CITY EXPENDITURES FOR FUNCTIONS ALLIED TO STREET PURPOSES 1955

	Parking Facilities					
	On Street	Off Street	Street Lighting	Side Walks	Storm Sewers	Total
	(000)	(000)	(000)	(000)	(000)	(000)
Construction	$ 6	....	$ 128	$ 59	$ 1	$ 194
Maintenance	220	$ 5	483	2	5	715
Total	$ 226	$ 5	$ 611	$ 61	$ 6	$ 909
Miscellaneous	31	....	....	....	....	31
Debt Service:						
General Bonds	....	....	....	1	4	5
Special Assessment	....	....	81	76	38	195
Total Debt Service	....	....	$ 81	$ 77	$ 42	$ 200
Transfers	$ 518	$ 45	$ 7	....	....	$ 570
Total Expenditures	$ 775	$ 50	$ 699	$ 138	$ 48	$ 1,710

Table 13

DIRECT FEDERAL GOVERNMENT EXPENDITURES IN MONTANA FOR HIGHWAY PURPOSES FOR SELECTED YEARS 1937-1955

	Forest Highways		Forest Development Roads		Other		
Year	Construction	Maintenance	Construction	Maintenance	Construction	Maintenance	Total
	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1937	$ 508	....	$ 640	$ 131	$ 590	....	$ 1,869
1941	195	....	121	156	52	$ 85	609
1946	....	....	67	180	21	205	473
1950	1,448	....	294	277	72	241	2,332
1953	2,254	....	496	338	131	279	3,498
1954	758	....	3,878	292	234	243	5,405
1955	1,728	....	1,896	308	1,192	227	5,351

Table 14

TOTAL REVENUE FOR HIGHWAY, STREET AND ROAD PURPOSES IN MONTANA FOR SELECTED YEARS 1937-1955

Year	Highway User Revenues	Property Tax And Assessments	Miscellaneous And Transfers	Borrowings	Federal-Aid	Direct Federal Funds	Total
	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1937	$ 6,154	$ 3,013	$ 86	$ 885	$ 3,528	$ 1,869	$15,535
1941	7,432	3,331	36	96	2,772	609	14,276
1946	7,624	4,558	219	1,808	2,519	473	17,201
1950	15,275	6,648	538	285	8,326	2,332	33,404
1953	18,012	7,938	1,200	848	6,621	3,498	38,117
1954	19,966	7,889	704	514	11,038	5,405	45,516
1955	23,050	8,135	835	784	8,620	5,351	46,775

Table 15

TOTAL EXPENDITURES FOR HIGHWAY, STREET AND ROAD PURPOSES IN MONTANA FOR SELECTED YEARS 1937-1955

Year	Construction	Maintenance	Administration And Miscellaneous	Highway Patrol And Other	Debt Service	Total
	(000)	(000)	(000)	(000)	(000)	(000)
1937	$ 7,104	$ 4,663	$ 886	$ 228	$ 2,965	$15,846
1941	6,145	5,659	564	261	1,364	13,993
1946	4,969	8,179	891	501	1,964	16,504
1950	14,754	12,966	1,733	894	1,759	32,106
1953	16,286	15,374	2,197	991	2,419	37,267
1954	23,717	15,789	1,989	1,256	2,257	45,008
1955	24,316	15,345	2,246	1,119	2,146	45,172

Table 16

ROAD TAX AND DEBT LIMIT DATA FOR COUNTIES 1955

County	Road Tax Levy	Bridge Tax Levy	Additional Annual Road And Bridge Taxes Leviable	Permissible Addition To Bonded Indebtedness
Beaverhead	$ 66,826	$ 41,377	$ 0	$ 1,303,714
Big Horn	80,957	29,843	0	2,598,600
Blaine	68,027	40,684	0	1,363,069
Broadwater	29,683	16,796	8,372	732,298
Carbon	112,264	22,407	14,938	1,683,085
Carter	22,997	11,388	12,383	589,616
Cascade	201,889	81,210	80,428	8,473,243
Choteau	105,702	60,411	0	2,298,572
Custer	44,815	32,399	19,206	1,566,454
Daniels	39,726	23,590	0	921,224
Dawson	70,479	32,356	0	1,797,501
Deer Lodge	58,377	24,736	31,827	1,610,740
Fallon	41,334	15,413	0	791,818
Fergus	107,568	43,493	0	2,625,542
Flathead	0	28,262	194,403	3,949,517
Gallatin	133,514	61,674	0	3,329,089
Garfield	32,261	10,168	0	459,805
Glacier	122,599	61,642	0	1,655,425
Golden Valley	24,532	10,630	0	415,166
Granite	20,938	10,358	17,334	581,059
Hill	91,867	27,381	13,690	2,618,036
Jefferson	42,821	14,290	0	680,930
Judith Basin	50,867	15,321	7,661	1,181,418
Lake	84,822	45,232	0	1,694,237
Lewis and Clark	71,425	61,892	24,965	3,877,608
Liberty	52,570	25,607	0	840,871
Lincoln	8,474	28,429	50,311	1,152,705
Madison	51,734	28,160	0	928,101
McCone	40,655	13,313	0	799,730
Meagher	36,496	8,615	4,307	670,297
Mineral	13,359	8,455	13,359	439,428
Missoula	0	14,467	302,163	1,183,204
Musselshell	29,365	14,288	7,341	622,540
Park	54,645	31,317	6,071	1,550,256
Petroleum	13,762	5,286	3,441	284,747
Phillips	66,729	40,339	0	1,338,963
Pondera	76,921	48,825	0	1,762,837
Powder River	35,183	11,508	3,836	669,487
Powell	60,544	17,045	5,681	1,132,708
Prairie	15,619	5,973	25,916	645,360
Ravalli	51,651	33,617	0	1,139,932
Richland	50,269	39,010	5,585	1,345,035
Roosevelt	101,990	41,476	0	1,840,499
Rosebud	88,347	12,498	20,859	1,413,470
Sanders	34,941	31,702	42,866	1,019,069
Sheridan	59,575	35,692	0	1,441,213
Silver Bow	48,755	21,339	88,797	4,331,911
Stillwater	75,013	27,601	0	1,229,465
Sweet Grass	35,058	10,407	16,889	750,414
Teton	85,807	51,646	0	1,858,876
Toole	87,655	31,919	0	1,612,119
Treasure	19,129	3,435	6,617	375,810
Valley	86,690	55,091	0	2,022,418
Wheatland	31,499	4,430	18,311	645,140
Wibaux	25,710	8,848	0	455,077
Yellowstone	0	108,451	630,477	10,670,480
TOTAL	$3,164,435	$1,641,742	$1,678,034	$94,969,928

Table 17

STREET TAX AND DEBT LIMIT DATA FOR CITIES 1955

City		Population	City Street Tax Levy	Additional Annual Street Taxes Leviable	Permissable Addition To Bonded Indebtedness
Anaconda	City	11,254	$ 44,259	$ 0	$ 264,026
Billings	City	31,834	186,464	81,829	841,825
Bozeman	City	11,325	58,352	3,071	830,301
Butte	City	33,254	168,767	0	3,065,769
Glendive	City	5,254	36,563	0	468,041
Great Falls	City	39,214	251,588	0	4,563,865
Havre	City	8,086	44,298	0	451,287
Helena	City	17,581	110,720	0	2,019,978
Kalispell	City	9,737	50,446	0	859,750
Lewistown	City	6,573	23,268	9,971	572,273
Livingston	City	7,683	37,516	7,629	811,007
Miles City	City	9,243	53,729	0	894,404
Missoula	City	22,485	111,146	0	1,785,618
Cities over 4,000, sub-total		213,523	1,177,116	102,500	17,428,144
Cities 2,500 to 4,000		39,627	169,873	830	1,936,328
Cities 1,001 to 2,500		49,717	214,837	7,401	2,283,285
Cities 0 to 1,000		34,613	119,081	13,290	1,372,233
Grand Total		337,480	$1,680,907	$ 124,021	$23,019,990

Table 18
HISTORICAL AND PROJECTED TRENDS
MONTANA

Year	Population	Index 1955 Base	Private Registrations	Index 1955 Base	Persons Per Vehicle	Highway Use Of Motor Fuel	Index 1955 Base	Average Gals. Per Vehicle	Index 1955 Base	Gallons Per Person	Index 1955 Base	Vehicle Miles (000)
						(Thousand Gallons)						
1925	534,885	85.2	94,656	28.7	5.7	27,909	12.1	294.8	42.0	52.2	14.2	309,860
1926	530,796	84.5	103,958	31.5	5.1	35,254	15.2	339.1	48.3	66.4	18.0	389,245
1927	526,706	83.9	112,735	34.2	4.7	43,206	18.7	383.3	54.6	82.0	22.2	478,874
1928	540,813	86.1	126,035	38.2	4.3	57,637	24.9	457.3	65.2	106.6	28.9	637,646
1929	524,466	83.5	140,387	42.5	3.7	59,183	25.6	421.6	60.1	112.8	30.6	655,571
1930	538,702	85.8	135,168	41.0	4.0	60,620	26.2	448.5	63.9	112.5	30.5	670,936
1931	540,315	86.0	127,166	38.5	4.2	62,218	26.9	489.3	69.7	115.2	31.2	688,863
1932	539,922	86.0	109,132	33.1	4.9	56,002	24.2	513.2	73.1	103.7	28.1	619,720
1933	541,032	86.2	110,245	33.4	4.9	57,599	24.9	522.5	74.5	106.5	28.9	637,646
1934	545,067	86.8	128,336	38.9	4.2	75,584	32.6	589.0	83.9	138.7	37.6	834,830
1935	550,220	87.6	149,712	45.4	3.7	80,959	35.0	540.8	77.1	147.1	39.9	896,290
1936	554,021	88.2	167,150	50.7	3.3	93,760	40.5	560.9	79.9	169.2	45.9	1,037,135
1937	553,865	88.2	173,892	52.7	3.2	94,760	40.9	544.9	77.6	171.1	46.4	1,047,379
1938	551,820	87.9	171,326	51.9	3.2	93,486	40.4	545.7	77.8	169.4	45.9	1,034,575
1939	554,951	88.4	180,319	54.6	3.1	103,906	44.9	576.2	82.1	187.2	50.8	1,149,812
1940	558,000	88.9	191,032	57.9	2.9	109,723	47.4	574.4	81.8	196.6	53.3	1,213,832
1941	543,000	86.5	198,732	60.2	2.7	117,731	50.8	592.4	84.4	216.8	58.8	1,300,901
1942	518,000	82.5	175,227	53.1	3.0	94,319	40.7	538.3	76.7	182.1	49.4	1,042,257
1943	485,000	77.2	160,809	48.7	3.0	75,287	32.5	468.2	66.7	155.2	42.1	832,269
1944	469,000	74.7	157,347	47.7	3.0	77,626	33.5	493.3	70.3	165.5	44.9	857,877
1945	477,000	76.0	156,885	47.5	3.0	88,298	38.1	562.8	80.2	185.1	50.2	975,675
1946	514,000	81.8	175,049	53.1	2.9	126,237	54.5	721.2	102.8	245.6	66.6	1,395,651
1947	531,000	84.6	193,383	58.6	2.7	140,969	60.9	729.0	103.9	265.5	72.0	1,559,544
1948	542,000	86.3	215,793	65.4	2.5	152,369	65.8	706.1	100.6	281.1	76.2	1,685,024
1949	569,000	90.6	240,467	72.9	2.4	163,536	70.6	680.1	96.9	287.4	77.9	1,807,945
1950	591,024	94.3	259,283	78.6	2.3	176,755	76.3	681.7	97.1	299.1	81.1	1,953,912
1951	588,000	93.6	271,200	82.2	2.2	194,929	84.2	718.8	102.4	331.5	89.9	2,156,217
1952	591,000	94.1	276,872	83.9	2.1	200,639	86.6	724.7	103.3	339.5	92.1	2,217,677
1953	618,000	98.4	295,908	89.7	2.1	229,335	99.0	775.0	110.4	371.1	100.7	2,535,220
1954	628,000	100.0	307,948	93.3	2.0	221,569	95.7	719.5	102.5	352.8	95.7	2,437,137
1955	628,000	100.0	329,959	100.0	1.9	231,557	100.0	701.8	100.0	368.7	100.0	2,560,828
1956	633,809	100.9	339,247	102.8	1.87	240,292	103.8	708.3	100.9	379.1	102.8	2,658,193
1957	639,619	101.8	348,534	105.6	1.83	249,028	107.5	714.5	101.8	389.3	105.6	2,752,892
1958	645,428	102.8	357,822	108.4	1.81	257,763	111.3	720.3	102.6	399.3	108.3	2,850,199
1959	651,238	103.7	367,110	111.3	1.77	266,499	115.1	725.9	103.4	409.2	111.0	2,947,513
1960	657,047	104.6	376,397	114.1	1.74	275,234	118,9	731.2	104.2	418.8	113.6	3,044,823
1961	662,857	105.5	385,685	116.9	1.72	283,969	122.6	736.3	104.9	428.4	116.2	3,139,575
1962	668,666	106.5	394,973	119.7	1.69	292,705	126.4	741.0	105.6	437.7	118.7	3,236,887
1963	674,476	107.4	404,260	122.5	1.67	301,440	130.2	745.6	106.2	446.9	121.2	3,334,199
1964	680,285	108.3	413,548	125.3	1.64	310,175	133.9	750.0	106.9	455.9	123.7	3,428,950
1965	686,095	109.2	422,836	128.1	1.62	318,911	137.7	754.2	107.5	464.8	126.1	3,526,260
1966	691,904	110.2	432,123	131.0	1.60	327,646	141.5	758.2	108.0	473.5	128.4	3,623,572
1967	697,714	111.1	441,411	133.8	1.58	336,381	145.3	762.0	108.9	482.1	130.8	3,720,379
1968	703,523	112.0	450,670	136.6	1.56	345,117	149.0	765.7	109.1	490.5	133.0	3,815,632
1969	709,333	112.9	459,986	139.4	1.54	353,852	152.8	769.2	109.6	498.8	135.3	3,912,945
1970	715,142	113.9	469,274	142.2	1.52	362,588	156.6	772.6	110.1	507.0	137.5	4,010,257
1971	720,952	114.8	478,562	145.0	1.50	371,323	160.4	775.9	110.6	515.0	139.7	4,107,568
1972	726,761	115.7	487,849	147.9	1.49	380,058	164.1	779.0	111.0	522.9	141.8	4,202,319
1973	732,571	116.6	497,137	150.7	1.47	388,794	167.9	782.0	111.4	530.7	143.9	4,299,630
1974	738,380	117.8	506,425	153.5	1.46	397,259	171.6	784.4	111.8	538.0	145.9	4,394,380
1975	744,190	118.5	515,712	156.3	1.44	406,265	175.4	787.7	112.2	545.9	148.1	4,491,692
1976	750,000	119.4	525,000	159.1	1.43	415,000	179.2	790.4	112.6	553.3	150.1	4,589,004

Table 19

ESTIMATED APPORTIONMENTS OF FEDERAL-AID AND STATE MATCHING FUNDS REQUIRED

Fiscal Years 1956-1976, Inclusive[1]

Fiscal Year	Interstate			Primary			Secondary			Urban			Total Program		
	Federal	State	Total	Federal	State	Total	Federal	State	Total	Federal	State	Total	Federal	State	Total
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
1956	$ 2,419	$ 1,303	$ 3,722	$ 6,342	$ 4,785	$ 11,127	$ 4,363	$ 3,291	$ 7,654	$ 408	$ 307	$ 715	$ 13,532[2]	$ 9,686	$ 23,218
1957	16,779	2,654	19,433	7,468	5,634	13,102	5,138	3,877	9,015	481	363	844	29,866	12,528	42,394
1958	24,400	2,300	26,700	7,700	5,800	13,500	5,300	4,000	9,300	500	380	880	37,900	12,480	50,380
1959	28,700	2,700	31,400	7,900	6,000	13,900	5,500	4,100	9,600	510	380	890	42,610	13,180	55,790
1960	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1961	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1962	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1963	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1964	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1965	17,405	1,638	19,403	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1966	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1967	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1968	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1969	17,405	1,638	19,043	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	31,625	12,328	43,953
1970	1,920	181	2,101	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	16,140	10,871	27,011
1971	1,920	181	2,101	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	16,140	10,871	27,011
1972	1,920	181	2,101	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	16,140	10,871	27,011
1973	1,920	181	2,101	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	16,140	10,871	27,011
1974	1,920	181	2,101	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	16,140	10,871	27,011
1975	1,920	181	2,101	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	16,140	10,871	27,011
1976	1,920	181	2,101	8,100	6,100	14,200	5,600	4,200	9,800	520	390	910	16,140	10,871	27,011
Total	$259,788	$26,604	$286,392	$167,110	$125,919	$293,029	$115,501	$86,668	$202,169	$10,739	$ 8,060	$18,799	$553,138	$247,251	$800,389

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[1] Does not include approximate annual Forest Highway funds of $2,390,000.

[2] Approximately $7 million of this and previous years allocations remained unmatched as of June 30, 1956. This $7 million, plus all figures below are the Federal amounts that Montana may expect in future years. Amounts through 1959 have been authorized by Congress.

Table 20

FORECAST OF STATE REVENUE FOR HIGHWAYS 1957-1996

Year	Fuel Tax[1]	G.V.W.	Other	Total Federal-Aid[2]	Total
	(000)	(000)	(000)	(000)	(000)
1957	$ 19,012[3]	$ 2,906	$ 773	$ 30,165[4]	$ 52,856
1958	14,046	2,985	799	34,990	52,820
1959	14,555	3,064	825	39,500	57,944
1960	15,064	3,146	852	28,415	47,477
1961	15,680	3,226	878	28,415	48,199
Sub-total	$ 78,357	$ 15,327	$ 4,127	$161,485	$259,296
1962	16,289	3,305	904	28,415	48,913
1963	16,898	3,384	930	28,415	49,627
1964	17,514	3,463	957	28,415	50,349
1965	18,123	3,542	983	28,415	51,063
1966	18,732	3,621	1,009	28,415	51,777
Sub-total	$ 87,556	$ 17,315	$ 4,783	$142,075	$251,729
1967	19,348	3,703	1,036	28,415	52,502
1968	19,957	3,783	1 062	28,415	53,217
1969	20,573	3,862	1,088	28,415	53,938
1970	21,182	3,941	1,114	12,930	39,167
1971	21,791	4,020	1,140	12,930	39,881
Sub-total	$102,851	$ 19,309	$ 5,440	$111,105	$238,705
1972	22,407	4 099	1,167	12,930	40,603
1973	23,016	4 181	1,193	12,930	41,320
1974	23,611	4,260	1,219	12,930	42,020
1975	24,241	4,339	1,246	12,930	42,756
1976	24,850	4,419	1,272	12,930	43,471
Sub-total	$118,125	$ 21,298	$ 6,097	$ 64,650	$210,170
20 Year	$386,889	$ 73,249	$ 20,447	$479,315	$959,900
1977	25,452	4,498	1,298	12,930	44,178
1978	26,075	4,577	1,324	12,930	44,906
1979	26,684	4,656	1,351	12,930	45,621
1980	27,286	4,735	1,376	12,930	46,327
1981	27,895	4,814	1,403	12,930	47,042
Sub-total	$133,392	$ 23,280	$ 6,752	$ 64,650	$228 074
1982	28,497	4,894	1,428	12,930	47 749
1983	29,106	4,973	1,455	12,930	48,464
1984	29,708	5,052	1,480	12,930	49,170
1985	30,317	5,131	1,507	12,930	49,885
1986	30,919	5,210	1,533	12,930	50,592
Sub-total	$148,547	$ 25,260	$ 7,403	$ 64,650	$245,860
1987	31,528	5,289	1,559	12,930	51,306
1988	32,130	5,368	1,585	12,930	52 013
1989	32,739	5,448	1,611	12,930	52,728
1990	33,341	5,527	1,637	12,930	53,435
1991	33,950	5,606	1,663	12,930	54,149
Sub-total	$163,688	$ 27,238	$ 8,055	$ 64,650	$263,631
1992	34,559	5,685	1,689	12,930	54,863
1993	35,161	5,764	1,715	12,930	55,570
1994	35,770	5,843	1,741	12,930	56,284
1995	36,372	5,923	1,767	12,930	56,992
1996	37,165	6 002	1,793	12,930	57,890
Sub-total	$179,027	$ 29,217	$ 8,705	$ 64,650	$281,599

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[1] Enough fuel tax taken from State funds and credited to county funds to match FAS funds as they become available for construction.

[2] In the past Forest Highway funds have been spent almost entirely on the State system. If this practice continues these funds of $2,390,000 per year will operate to reduce the State backlog needs and are, therefore, included in Federal-Aid.

[3] Approximately one-half year revenue from fuel tax applicable against total needs calculated by Automotive Safety Foundation in mid-1956.

[4] Includes unobligated balance, June 30, 1956.

Table 21

FORECAST OF COUNTY REVENUE FOR ROADS 1957-1996

Year	Property Tax	Federal Aid	Portion Of Fuel Tax	Registration Fees	Other	Total
	(000)	(000)	(000)	(000)	(000)	(000)
1957	$ 6,833	$ 9,172[1]	$ 6,918[2]	$ 3,485	$ 166	$ 26,574
1958	7,074	5,300	4,000	3,578	172	20,124
1959	7,316	5,500	4,100	3,671	178	20,765
1960	7,557	5,600	4,200	3,764	184	21,305
1961	7,792	5,600	4,200	3,857	189	21,638
Sub-total	$ 36,572	$ 31,172	$ 23,418	$ 18,355	$ 889	$110,406
1962	8,034	5,600	4,200	3,950	195	21,979
1963	8,276	5,600	4,200	4,043	201	22,320
1964	8,511	5,600	4,200	4,135	207	22,653
1965	8,752	5,600	4,200	4,228	213	22,993
1966	8,994	5,600	4,200	4,321	219	23,334
Sub-total	$ 42,567	$ 28,000	$ 21,000	$ 20,677	$ 1,035	$113,279
1967	9,235	5,600	4,200	4,414	225	23,674
1968	9,470	5,600	4,200	4,507	230	24,007
1969	9,712	5,600	4,200	4,600	236	24,348
1970	9,953	5,600	4,200	4,693	242	24,688
1971	10,195	5,600	4,200	4,786	248	25,029
Sub-total	$ 48,565	$ 28,000	$ 21,000	$ 23,000	$ 1,181	$121,746
1972	10,430	5,600	4,200	4,878	254	25,362
1973	10,672	5,600	4,200	4,971	259	25,702
1974	10,907	5,600	4,200	5,064	265	26,036
1975	11,148	5,600	4,200	5,157	271	26,376
1976	11,390	5,600	4,200	5,250	277	26,717
Sub-total	$ 54,547	$ 28,000	$ 21,000	$ 25,320	$ 1,326	$130,193
20-Year	$182,251	$115,172	$ 86,418	$ 87,352	$ 4,431	$475,624
1977	11,823	5,600	4,200	5,397	288	27,308
1978	12,244	5,600	4,200	5,544	298	27,886
1979	12,677	5,600	4,200	5,691	308	28,476
1980	13,110	5,600	4,200	5,843	319	29,072
1981	13,543	5,600	4,200	5,990	329	29,662
Sub-total	$ 63,397	$ 28,000	$ 21,000	$ 28,465	$ 1,542	$142,404
1982	13,964	5,600	4,200	6,137	340	30,241
1983	14,397	5,600	4,200	6,284	350	30,831
1984	14,830	5,600	4,200	6,431	361	31,422
1985	15,251	5,600	4,200	6,578	371	32,000
1986	15,684	5,600	4,200	6,725	381	32,590
Sub-total	$ 74,126	$ 28,000	$ 21,000	$ 32,155	$ 1,803	$157,084
1987	16,117	5,600	4,200	6,878	392	33,187
1988	16,550	5,600	4,200	7,025	402	33,777
1989	16,971	5,600	4,200	7,172	413	34,356
1990	17,404	5,600	4,200	7,319	423	34,946
1991	17,837	5,600	4,200	7,466	434	35,537
Sub-total	$ 84,879	$ 28,000	$ 21,000	$ 35,860	$ 2,064	$171,803
1992	18,270	5,600	4,200	7,613	444	36,127
1993	18,691	5,600	4,200	7,765	455	36,711
1994	19,124	5,600	4,200	7,912	465	37,301
1995	19,545	5,600	4,200	8,059	475	37,879
1996	19,978	5,600	4,200	8,206	486	38,470
Sub-total	$ 95,608	$ 28,000	$ 21,000	$ 39,555	$ 2,325	$186,488

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[1] Includes unobligated balance, June 30, 1956.

[2] Enough fuel tax taken from State funds and credited to county funds to match FAS funds as they become available for construction.

Table 22

FORECAST OF CITY REVENUE FOR STREETS, 1957-1996

Year	Property Tax & Assessments (000)	Other (000)	Total (000)
1957	$ 2,948	$ 544	$ 3,492
1958	3,052	563	3,615
1959	3,156	582	3,738
1960	3,260	602	3,862
1961	3,362	620	3,982
Sub-total	$ 15,778	$ 2,911	$ 18,689
1962	3,466	640	4,106
1963	3,570	659	4,229
1964	3,672	678	4,350
1965	3,776	697	4,473
1966	3,880	716	4,596
Sub-total	$ 18,364	$ 3,390	$ 21,754
1967	3,984	735	4,719
1968	4,086	754	4,840
1969	4,190	773	4,963
1970	4,294	792	5,086
1971	4,398	812	5,210
Sub-total	$ 20,952	$ 3,866	$ 24,818
1972	4,500	830	5,330
1973	4,604	850	5,454
1974	4,705	868	5,573
1975	4,809	887	5,696
1976	4,914	907	5,821
Sub-total	$ 23,532	$ 4,342	$ 27,874
20-Year Total	$ 78,626	$ 14,509	$ 93,135
1977	5,101	941	6,042
1978	5,283	975	6,258
1979	5,469	1,009	6,478
1980	5,656	1,044	6,700
1981	5,843	1,078	6,921
Sub-total	$ 27,352	$ 5,047	$ 32,399
1982	6,025	1,112	7,137
1983	6,211	1,146	7,357
1984	6,398	1,181	7,579
1985	6,580	1,214	7,794
1986	6,767	1,249	8,016
Sub-total	$ 31,981	$ 5,902	$ 37,883
1987	6,953	1,283	8,236
1988	7,140	1,318	8,458
1989	7,322	1,351	8,673
1990	7,509	1,386	8,895
1991	7,695	1,420	9,115
Sub-total	$ 36,619	$ 6,758	$ 43,377
1992	7,882	1,455	9,337
1993	8,064	1,488	9,552
1994	8,251	1,523	9,774
1995	8,432	1,556	9,988
1996	8,619	1,591	10,210
Sub-total	$ 41,248	$ 7,613	$ 48,861

Table 23

FORECAST OF REVENUE FOR ALL HIGHWAY AND STREET PURPOSES 1957-1996

Year	1 Property Tax	2 Highway User Revenue	3 Other	4 Federal Aid	Total
	(000)	(000)	(000)	(000)	(000)
1957	$ 9,781	$ 32,321	$ 1,483	$ 39,337	$ 82,922
1958	10,126	24,609	1,534	40,290	76,559
1959	10,472	25,390	1,585	45,000	82,447
1960	10,817	26,174	1,638	34,015	72,644
1961	11,154	26,963	1,687	34,015	73,819
Sub-total	$ 52,350	$135,457	$ 7,927	$192,657	$388,391
1962	11,500	27,744	1,739	34,015	74,998
1963	11,846	28,525	1,790	34,015	76,176
1964	12,183	29,312	1,842	34,015	77,352
1965	12,528	30,093	1,893	34,015	78,529
1966	12,874	30,874	1,944	34,015	79,707
Sub-Total	$ 60,931	$146,548	$ 9,208	$170,075	$386,762
1967	13,219	31,665	1,996	34,015	80,895
1968	13,556	32,447	2,046	34,015	82,064
1969	13,902	33,235	2,097	34,015	83,249
1970	14,247	34,016	2,148	18,530	68,941
1971	14,593	34,797	2,200	18,530	70,120
Sub-Total	$ 69,517	$166,160	$ 10,487	$139,105	$385,269
1972	14,930	35,584	2 251	18,530	71,295
1973	15,276	36,368	2,302	18,530	72,476
1974	15,612	37,135	2,352	18,530	73,629
1975	15,957	37,937	2,404	18,530	74,828
1976	16,304	38,719	2,456	18,530	76,009
Sub-Total	$ 78,079	$185,743	$ 11,765	$ 92,650	$368,237
20-Year	$260,877	$633,908	$ 39,387	$594,487	$1,528,659
1977	16,924	39,547	2,527	18,530	77,528
1978	17,527	40,396	2,597	18,530	79,050
1979	18,146	41,231	2,668	18,530	80,575
1980	18,766	42,064	2,739	18,530	82,099
1981	19,386	42,899	2,810	18,530	83,625
Sub-Total	$ 90,749	$206,137	$ 13,341	$ 92,650	$402,877
1982	19,989	43,728	2,880	18,530	85,127
1983	20,608	44,563	2,951	18,530	86,652
1984	21,228	45,391	3,022	18,530	88,171
1985	21,831	46,226	3,092	18,530	89,679
1986	22,451	47,054	3,163	18,530	91,198
Sub-Total	$106,107	$226,962	$ 15,108	$ 92,650	$440,827
1987	23,070	47,895	3,234	18,530	92,729
1988	23,690	48,723	3,305	18,530	94,248
1989	24,293	49,559	3,375	18,530	95,757
1990	24,913	50,387	3,446	18,530	97,276
1991	25,532	51,222	3,517	18,530	98,801
Sub-Total	$121,498	$247,786	$ 16,877	$ 92,650	$478,811
1992	26,152	52,057	3,588	18,530	100,327
1993	26,755	52,890	3,658	18,530	101,833
1994	27,375	53,725	3,729	18,530	103,359
1995	27,977	54,554	3,798	18,530	104,859
1996	28,597	55,573	3,870	18,530	106,570
Sub-Total	$136,856	$268,799	$ 18,643	$ 92,650	$516,948

Table 24

AVERAGE ANNUAL DIRECT HIGHWAY COSTS FOR 20-YEAR PERIOD TO IMPLEMENT 10-YEAR CATCH-UP PROGRAM[1]

System	First 10 Years			Next 3 Years			Next 7 Years		
	Construction	Maintenance And Administration	Total	Construction	Maintenance And Administration	Total	Construction	Maintenance And Administration	Total
Major Traffic Facilities									
Interstate Routes	$20,899,000			$20,899,000			$ 2,101,000		
Other State Highways	30,805,000			8,352,000			8,352,000		
Total State	$51,704,000	$11,098,000	$62,802,000	$29,251,000	$ 9,975,000	$39,226,000	$10,453,000	$ 9,035,000	$19,488,000
Secondary Roads	18,121,000	4,667,000	22,788,000	5,138,000	4,280,000	9,418,000	5,138,000	4,280,000	9,418,000
Arterial Streets	1,499,000	691,000	2,190,000	272,000	655,000	927,000	272,000	655,000	927,000
Total Major Road and Street Systems	$71,324,000	$16,456,000	$87,780,000	$34,661,000	$14,910,000	$49,571,000	$15,863,000	$13,970,000	$29,833,000
Minor Traffic Facilities									
Local County Roads			$13,366,000			$13,366,000			$13,366,000
Local City Streets			3,889,000			3,889,000			3,889,000
Total Minor Road and Street Systems			$17,255,000			$17,255,000			$17,255,000
TOTAL ALL SYSTEMS			$105,035,000			$66,826,000			$47,088,000

[1] Automotive Safety Foundation study estimates.

Table 25

AVERAGE ANNUAL DIRECT HIGHWAY COSTS FOR 20-YEAR PERIOD TO IMPLEMENT 13-YEAR CATCH-UP PROGRAM[1]

System	First 13 Years			Next 7 Years		
	Construction	Maintenance And Administration	Total	Construction	Maintenance And Administration	Total
Major Traffic Facilities						
Interstate Routes	$20,899,000			$ 2,101,000		
Other State Highways	26,312,000			7,073,000		
Total State	$47,211,000	$10,872,000	$58,083,000	$ 9,174,000	$ 8,971,000	$18,145,000
Secondary Roads	15,449,000	4,587,000	20,036,000	4,518,000	4,281,000	8,799,000
Arterial Streets	1,237,000	683,000	1,920,000	228,000	654,000	882,000
TOTAL MAJOR ROAD AND STREET SYSTEMS	$63,897,000	$16,142,000	$80,039,000	$13,920,000	$13,906,000	$27,826,000
Minor Traffic Facilities						
Local County Roads			$13,366,000			$13,366,000
Local City Streets			3,889,000			3,889,000
TOTAL MINOR ROAD AND STREET SYSTEMS			$17,255,000			$17,255,000
TOTAL ALL SYSTEMS			$97,294,000			$45,081,000

[1] Automotive Safety Foundation study estimates.

Table 26

AVERAGE ANNUAL DIRECT HIGHWAY COSTS FOR 20-YEAR PERIOD TO IMPLEMENT 20-YEAR CATCH-UP PROGRAM[1]

System	First 13 Years			Next 7 Years		
	Construction	Maintenance And Administration	Total	Construction	Maintenance And Administration	Total
Major Roads and Streets						
Interstate Routes	$20,899,000	....	....	$ 2,101,000	....	....
Other State Highways	19,578,000	....	....	19,578,000	....	....
Total State	$40,477,000	$10,536,000	$51,013,000	$21,679,000	$ 9,596,000	$31,275,000
Secondary Roads	11,626,000	4,471,000	16,097,000	11,626,000	4,471,000	16,097,000
Arterial Streets	884,000	673,000	1,557,000	884,000	673,000	1,557,000
Sub-total Major Road and Street Systems	$52,987,000	$15,680,000	$68,667,000	$34,189,000	$14,740,000	$48,929,000
Minor Roads and Streets						
Local Roads	$ 9,270,000	$ 4,096,000	$13,366,000	$ 9,270,000	$ 4,096,000	$13,366,000
Local Streets	1,822,000	2,067,000	3,889,000	1,822,000	2,067,000	3,889,000
Sub-total Minor Roads and Streets	$11,092,000	$ 6,163,000	$17,255,000	$11,092,000	$ 6,163,000	$17,255,000
TOTAL ALL ROADS AND STREETS	$64,079,000	$21,843,000	$85,922,000	$45,281,000	$20,903,000	$66,184,000

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[1] Automotive Safety Foundation study estimates.

Table 27

PROJECTION OF STATE EXPENDITURES REQUIRED TO COMPLETE 13-YEAR CATCH-UP PROGRAM[1]

Year	Construction	Maintenance And Administration	Debt Service	Total
	(000)	(000)	(000)	(000)
1957	$ 47,211	$ 10,872	$ 1,272	$ 59,355
1958	47,211	10,872	....	58,083
1959	47,211	10,872	....	58,083
1960	47,211	10,872	....	58,083
1961	47,211	10,872	....	58,083
1962	47,211	10,872	....	58,083
1963	47,211	10,872	....	58,083
1964	47,211	10,872	....	58,083
1965	47,211	10,872	....	58,083
1966	47,211	10,872	....	58,083
1967	47,211	10,872	....	58,083
1968	47,211	10,872	....	58,083
1969	47,211	10,872	....	58,083
First 13 Years	$513,743	$141,336	$ 1,272	$756,351
1970	$ 9,174	$ 8,971	....	$ 18,145
1971	9,174	8,971	....	18,145
1972	9,174	8,971	....	18,145
1973	9,174	8,971	....	18,145
1974	9,174	8,971	....	18,145
1975	9,174	8,971	....	18,145
1976	9,174	8,971	....	18,145
Next 7 Years	$ 64,218	$ 62,797	....	$127,015
20-Year Total	$677,961	$204,133	$ 1,272	$883,366

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[1] Assumes urban extensions of State highways as full obligation of State Highway Department.

Table 28

PROJECTION OF COUNTY EXPENDITURES REQUIRED TO COMPLETE 13-YEAR CATCH-UP PROGRAM FOR SECONDARY ROADS AND 20-YEAR PROGRAM FOR OTHER ROADS

Year	Secondary Roads	Other Local Roads	Miscellaneous	Debt Service	Total
	(000)	(000)	(000)	(000)	(000)
1957	$ 20,036	$ 13,366	$ 125	$ 51	$ 33,578
1958	20,036	13,366	128	51	33,581
1959	20,036	13,366	131	51	33,584
1960	20,036	13,366	135	41	33,578
1961	20,036	13,366	138	......	33,540
1962	20,036	13,366	141	......	33,543
1963	20,036	13,366	145	......	33,547
1964	20,036	13,366	148	......	33,550
1965	20,036	13,366	151	......	33,553
1966	20,036	13,366	155	......	33,557
1967	20,036	13,366	158	......	33,560
1968	20,036	13,366	161	......	33,563
1969	20,036	13,366	164	......	33,566
First 13 Years	$260,468	$173,758	$ 1,880	$ 194	$436,300
1970	8,799	13,366	168	......	22,333
1971	8,799	13,366	171	......	22,336
1972	8,799	13,366	175	......	22,340
1973	8,799	13,366	178	......	22,343
1974	8,799	13,366	181	......	22,346
1975	8,799	13,366	184	......	22,349
1976	8,799	13,366	187	......	22,352
Next 7 Years	$ 61,593	$ 93,562	$ 1,244	......	$156,399
20-Year Total	$322 061	$267,320	$ 3,124	$ 194	$592,699

Table 29

PROJECTION OF CITY EXPENDITURES REQUIRED TO COMPLETE 13-YEAR CATCH-UP PROGRAM FOR CITY ARTERIALS AND 20-YEAR PROGRAM FOR OTHER STREETS[1]

Year	Arterial Streets	Other Local Streets	Miscellaneous	Debt Service	Total
	(000)	(000)	(000)	(000)	(000)
1957	$ 1,920	$ 3,889	$ 66	$ 44	$ 5,919
1958	1,920	3,889	68	44	5,921
1959	1,920	3,889	70	44	5,923
1960	1,920	3,889	73	44	5,926
1961	1,920	3,889	75	44	5,928
1962	1,920	3,889	77	20	5,906
1963	1,920	3,889	79	......	5,888
1964	1,920	3,889	82	......	5,891
1965	1,920	3,889	84	......	5,893
1966	1,920	3,889	86	......	5,895
1967	1,920	3,889	89	......	5,898
1968	1,920	3,889	91	......	5,900
1969	1,920	3,889	93	......	5,902
First 13 Years	24,960	$ 50,557	$ 1,033	$ 240	$ 76,790
1970	882	3,889	96	......	4,867
1971	882	3,889	98	......	4,869
1972	882	3,889	100	......	4,871
1973	882	3,889	102	......	4,873
1974	882	3,889	105	......	4,876
1975	882	3,889	107	......	4,878
1976	882	3,889	109	......	4,880
Next 7 Years	$ 6,174	$ 27,223	$ 717	......	$ 34,114
20-Year Total	$ 31,134	$ 77,780	$ 1,750	$ 240	$110,904

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[1] Assumes Urban Extensions of State Highways as full obligation of State Highway Department.

Table 30

HIGHWAY PROGRAM COSTS (13-YEAR CATCH-UP) VS. ESTIMATED REVENUES FOR STATE HIGHWAYS

1957-1996

Year	Program Costs[1] (000)	Estimated Revenues[2] (000)	Deficit (000)	Surplus (000)
1957	$ 54,492	$ 52,856	$ 1,636	$ ....
1958	55,675	52,820	2,855	....
1959	58,130	57,944	186	....
1960	60,585	47,477	13,108	....
1961	63,040	48,199	14,841	....
1962	65,495	48,913	16,582	....
1963	67,336	49,627	17,709	....
1964	67,336	50,349	16,987	....
1965	67,336	51,063	16,273	....
1966	67,336	51,777	15,559	....
1967	54,448	52,502	1,946	....
1968	42,788	53,217	....	10,429
1969	32,354	53,938	....	21,584
1970	15,474	39,167	....	23,693
1971	16,287	39,881	....	23,594
1972	17,100	40,603	....	23,503
1973	17,913	41,320	....	23,407
1974	18,726	42,020	....	23,294
1975	20,351	42,756	....	22,405
1976	21,164	43,471	....	22,307
1977	24,070	44,178	....	20,108
1978	25,598	44,906	....	19,308
1979	27,195	45,621	....	18,426
1980	29,053	46,327	....	17,274
1981	31,151	47,042	....	15,891
1982	33,379	47,749	....	14,370
1983	35.696	48,464	....	12,768
1984	37,924	49,170	....	11,246
1935	39,952	49,885	....	9,933
1986	41,759	50,592	....	8,833
1987	43,387	51,306	....	7,919
1988	44,125	52,013	....	7,888
1989	44,843	52,728	....	7,885
1990	45,640	53,435	....	7,795
1991	46.508	54,149	....	7,641
1992	47,356	54,863	....	7,507
1993	48,184	55,570	....	7,386
1994	48,971	56,284	....	7,313
1995	49,899	56,992	....	7.093
1996	50,826	57,890	....	7,064

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[1] Includes construction, maintenance, administration of rural and urban sections of Primary Highways.

[2] Does not include Federal-Aid Secondary funds from Federal sources or required matching funds from State sources. These funds are included in county sources.

Table 31

HIGHWAY PROGRAM COSTS VS. ESTIMATED REVENUES FOR COUNTY ROADS,

Secondary and Local, 1957-1996[1]

Year	Program Costs[2] (000)	Estimated Revenues[3] (000)	Deficit (000)	Surplus (000)
1957	$ 33,578	$ 26,574	$ 7,004	$ ....
1958	33,581	20,124	13,457	....
1959	33,584	20,765	12,819	....
1960	33,578	21,305	12,273	....
1961	33,540	21,638	11,902	....
1952	33.543	21,979	11,564	....
1963	33,547	22,320	11,227	....
1964	33.550	22,653	10,897	....
1965	33,553	22,993	10,560	....
1966	33,557	23,334	10,223	....
1967	33.560	23,674	9,886	....
1968	33,563	24,007	9,556	....
1969	33,566	24,348	9,218	....
1970	22,333	24,688	....	2,355
1971	22,336	25,029	....	2,693
1972	22,340	25,362	....	3,022
1973	22,343	25,702	....	3,359
1974	22,346	26,036	....	3,690
1975	22,349	26,376	....	4,027
1976	22,352	26,717	....	4,365
1977	24,022	27,308	....	3,286
1978	25,448	27,886	....	2,438
1979	26,995	28,478	....	1,483
1980	28,681	29,072	....	391
1931	30,387	29,662	725	....
1982	32,173	30.241	1,932	....
1983	33,960	30.831	3,129	....
1984	35,546	31,422	4,124	....
1985	36,771	32,000	4,771	....
1986	37,684	32,590	5,094	....
1987	38.404	33,187	5,217	....
1988	38,920	33,777	5,143	....
1989	39,426	34,356	5,070	....
1990	40,004	34,946	5,058	....
1991	40,600	35,537	5,063	....
1992	41,275	36.127	5,148	....
1993	41,972	36,711	5,261	....
1994	42,628	37,301	5,327	....
1995	43.325	37,879	5,446	....
1996	43,991	38,470	5,521	....

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[1] Catch-up period 13-years for Secondary, 20-years for local.

[2] Includes construction, maintenance and administration.

[3] Includes Federal-Aid Secondary funds from the Federal government and matching funds from State sources.

Table 32

HIGHWAY PROGRAM COSTS VS. ESTIMATED REVENUES[1] FOR CITY STREETS,
(Arterials and Local)
1957-1996

Year	Program Costs[2]	Estimated Revenues	Deficit	Surplus
	(000)	(000)	(000)	(000)
1957	$ 5,919	$ 3,492	$ 2,427	$ ....
1958	5,921	3,615	2,306	....
1959	5,923	3,738	2,185	....
1960	5,926	3,862	2,064	....
1961	5,928	3,982	1,946	....
1962	5,906	4,106	1,800	....
1963	5,888	4,229	1,659	....
1964	5,891	4,350	1,541	....
1965	5,893	4,473	1,420	....
1966	5,895	4,596	1,299	....
1967	5,898	4,719	1,179	....
1968	5,900	4,840	1,060	....
1969	5,902	4,963	939	....
1970	4,867	5,086	....	219
1971	4,869	5,210	....	341
1972	4,871	5,330	....	459
1973	4,873	5,454	....	581
1974	4,876	5,573	....	697
1975	4,878	5,696	....	818
1976	4,880	5,821	....	941
1977	5,002	6,042	....	1,040
1978	5,209	6,258	....	1,049
1979	5,443	6,478	....	1,035
1980	5,670	6,700	....	1,030
1981	5,917	6,921	....	1,004
1982	6,144	7,137	....	993
1983	6,368	7,357	....	989
1984	6,546	7,579	....	1,033
1985	6,712	7,794	....	1,082
1986	6,857	8,016	....	1,159
1987	7,014	8,236	....	1,222
1988	7,131	8,458	....	1,327
1989	7,278	8,673	....	1,395
1990	7,401	8,895	....	1,494
1991	7,569	9,115	....	1,546
1992	7,716	9,377	....	1,661
1993	7,873	9,552	....	1,679
1994	8,027	9,774	....	1,747
1995	8,194	9,988	....	1,794
1996	8,348	10,210	....	1,862

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[1] Catch-up period 13 years for arterial streets, 20 years local streets.

[2] Includes construction, maintenance and administration. Does not include urban extensions of State Primary Highways which are shown as a State responsibility.

Table 33

HIGWAY PROGRAM COSTS VS. ESTIMATED REVENUES FOR ALL ROAD AND STREET PURPOSES
1957-1996
(13-Year Catch-up Primary and Secondary; 20-Year Catch-up Local Systems)

Year	Program Costs	Estimated Revenues	Deficit	Surplus
	(000)	(000)	(000)	(000)
1957	$ 93,989	$ 82,922	$ 11,067	$ ....
1958	95,117	76,559	18,618	....
1959	97,637	82,447	15,190	....
1960	100,089	72,644	27,445	....
1961	102,508	73,819	28,689	....
1962	104,944	74,998	29,946	....
1963	106,771	76,176	30,595	....
1964	106,777	77,352	29,425	....
1965	106,782	78,529	28,253	....
1966	106,788	79,707	27,081	....
1967	93,906	80,895	13,011	....
1968	82,251	82,064	187	....
1969	71,822	83,249	....	11,427
1970	42,674	68,941	....	26,267
1971	43,492	70,120	....	26,628
1972	44,311	71,295	....	26,984
1973	45,129	72,476	....	27,347
1974	45,948	73,629	....	27,681
1975	47,578	74,828	....	27,250
1976	48,396	76,009	....	27,613
1977	53,094	77,528	....	24,434
1978	56,255	79,050	....	22,795
1979	59,633	80,577	....	20,944
1980	63,404	82,099	....	18,695
1981	67,455	83,625	....	16,170
1982	71,696	85,127	....	13,431
1983	76,024	86,652	....	10,628
1984	80,016	88,171	....	8,155
1985	83,435	89,679	....	6,244
1986	86,300	91,198	....	4,898
1987	88,805	92,729	....	3,924
1988	90,176	94,248	....	4,072
1989	91,547	95,757	....	4,210
1990	93,045	97,276	....	4,231
1991	94,677	98,801	....	4,124
1992	96,347	100,367	....	4,020
1993	98,029	101,833	....	3,804
1994	99,626	103,359	....	3,733
1995	101,418	104,859	....	3,441
1996	102,665	106,570	....	3,905

Table 34

ESTIMATED VEHICLE REGISTRATION, 1955

Weight Classification	Non-Farm Vehicles			Farm Vehicles		
	Trucks & Tractors	Trailers	Buses	Trucks	Trailers	Total
Exempt	[1]5,018	[2]415	[3]813	....	....	6,246
Under 6,000	27,313	11,681	24	16,294	6,593	61,905
6,000 - 8,000	2,862	230	19	8,335	85	11,531
8,000 - 10,000	1,771	162	26	5,146	55	7,160
10,000 - 12,000	1,173	153	16	2,395	29	3,766
12,000 - 14,000	1,416	124	11	2,326	48	3,925
14,000 - 16,000	1,812	174	21	2,692	23	4,722
16,000 - 18,000	1,870	741	17	3,796	156	6,580
18,000 - 20,000	1,659	....	40	4,922	......	6,621
20,000 - 22,000	1,586	....	....	4,510	....	6,096
22,000 - 24,000	1,351	42	26	2,689	6	4,114
24,000 - 26,000	744	33	183	859	4	1,823
26,000 - 28,000	540	44	17	338	10	949
28,000 - 30,000	167	190	1	98	4	460
30,000 - 32,000	153	1,053	....	23	19	1,248
32,000 - 34,000	123	25	....	....	14	162
34,000 - 36,000	303	359	....	....	8	670
36,000 - 38,000	143	157	8	....	26	334
38,000 - 40,000	202	12	....	....	2	216
40,000 - 42,000	856	62	....	....	....	918
Over 42,000						
Sub-total	46,044	15,242	409	54,423	7,082	123,200
Total Trucks, Buses and Trailers	51,062	15,657	1,222	54,423	7,082	129,446
Passenger cars						232,501
Exempt passenger cars						[4]1,206
Motorcyles						1,216
Total All Vehicles						364,369

[1] State and local 3,543 Federal 1,475
[2] State and local 406 Federal 9
[3] State and local 801 Federal 12
[4] State and local 872 Federal 334

Table 35

ESTIMATED TRAFFIC BY SYSTEMS

System	1956 Veh. Miles	1966 Veh. Miles	1976 Veh. Miles	1986 Veh. Miles
	(000)	(000)	(000)	(000)
Rural				
Interstate	642,738	875,870	1,109,621	1,344,920
Primary	971,816	1,324,450	1,677,740	2,033,511
Secondary	356,988	486 760	616,303	746,992
Local Roads	263,422	358,880	454,770	551,206
Total Rural	2,234,964	3,045,960	3,858,434	4,676,629
Urban				
Interstate	18 873	25,580	32,582	39,491
Primary	159,755	217,600	275,800	334,284
Arterials	97,819	133,260	168,874	204,685
Local	146,732	199,900	253,314	307,030
Total Urban	423,179	576,340	730,570	885,490
Total All Systems	2,658,143	3,622,300	4,589,004	5,562,119

Table 36

ESTIMATED AVERAGE FUEL CONSUMPTION AND AVERAGE ANNUAL MILEAGE

Type and Gross Loaded Weight	Fuel Consumption (Miles per Gallon)	Average Annual Miles Per Vehicle
Passenger cars	14.80	8,239
Farm Vehicles		
Under 6,000	10.80	4,697
6,000 - 12,000	8.75	2,980
12,000 - 18,000	6.49	3,507
18,000 - 24,000	5.57	4,252
24,000 - 32,000	4.93	7,269
Commercial Vehicles Busses		
6,000 - 12,000	9.09	7,416
12,000 - 18,000	6.55	9,592
18,000 - 24,000	5.65	7,585
24,000 - 32,000	5.49	23,714
32,000 - 38,000	5.45	267,555
Trucks and Combinations		
Under 6,000	10.80	4,310
6,000 - 12,000	8.68	22,765
12,000 - 18,000	6.59	9,620
18,000 - 24,000	5.55	13,575
24,000 - 30,000	5.12	13,331
30,000 - 36,000	4.63	14,890
36,000 - 42,000	4.63	26,642
42,000 - 48,000	4.98	49,500
48,000 - 54,000	4.72	53,000
54,000 - 60,000	4.51	58,000
60,000 - 66,000	4.33	67,000
66,000 - 72,000	4.19	67,000
72,000 - 78,000	4.03	67,000

Table 37

AVERAGE ANNUAL TRAVEL—MONTANA VEHICLES

	Passenger Cars		Trucks		All Vehicles	
System of Travel	Miles	Percent of Travel	Miles	Percent of Travel	Miles	Percent of Travel
Primary Rural	4,802	56.0	2,791	45.1	4,198	53.4
Secondary Rural	801	9.3	683	11.0	767	9.8
Other Rural	1,150	13.4	1,782	28.8	1,340	17.0
Total	6,753	78.7	5,256	84.9	6,305	80.2
City Streets	1,385	16.2	595	9.6	1,148	14.6
Total	8,138	94.9	5,851	94.5	7,453	94.8
Out of State	439	5.1	340	5.5	408	5.2
TOTAL	8 577	100.0	6,191	100.0	7,861	100.0

Source: Motor Vehicle Use Study

Table 38

TRUCK WEIGHT TRENDS IN MONTANA

Vehicle Type	Average Loaded Weight (Tons)	Percent of Traffic	Average Loaded Weight (Tons)	Percent of Traffic
Solo Trucks	3.0	18.06	5.5	14.98
Tractor-Semi-Trailer	10.6	1.22	22.3	2.83
Truck and Trailer	16.5	0.63	32.7	1.14
All Trucks	4.2	19.91	10.4	18.95
Passengers Cars and Others	....	80.09	....	81.05
TOTAL	....	100.00	....	100.00

Source: Annual Loadometer Studies. Limited observations on Primary routes during short summer periods.

Table 40

APPORTIONMENT OF STATE CONSTRUCTION FUNDS TO THE FEDERAL-AID "URBAN" SYSTEM

For the Fiscal Year Ending June 30, 1957

Urban City	Population Per 1950 Census	Percentage For Fund Allocation
Anaconda	11,254	4.8669
Billings and Environs	36,011	15.5732
Bozeman	11,325	4.8976
Butte and Environs	41,908	18.1234
Glendive	5,254	2.2721
Great Falls and Environs	40,663	17.5850
Havre	8,086	3.4968
Helena	17,581	7.6030
Kalispell	9,737	4.2108
Lewistown	6,573	2.8425
Livingston	7,683	3.3226
Miles City	9,243	3.9972
Missoula and Environs	25,919	11.2089
TOTAL	231,237	100.0000

Table 39

TRAVEL AND WEIGHT DATA

Vehicle Type	Registration		Vehicle Miles[1]		Ton Miles	
	Number	Percent	Number	Percent	Number	Percent
			(000)		(000)	
Passenger Cars	215,690	68.6	1,750,463	71.8	3,500,926	43.4
Buses	1,156	0.4	15,561	0.6	178,951	2.2
Solo Trucks:						
Pickup and Panel	47,717	15.2	329,152	13.5	822,880	10.2
2 axle (4 tire)	....	.....	20,296	0.9	71,036	0.9
2 axle (6 tire)	47,441	15.0	217,728	8.9	1,393,459	17.3
3 axle	961	0.3	21,120	0.9	264,000	3.3
TOTAL	96,119	30.5	588,296	24.2	2,551,375	31.7
Combinations:						
Tractor-Semi-Trailer	884	0.3	53,506	2.2	1,059,418	13.2
Truck-Trailer	480	0.2	29,311	1.2	767,948	9.5
TOTAL	1,364	0.5	82,817	3.4	1,827,366	22.7
GRAND TOTAL	314,329	100.0	2,437,137	100.0	8,058,618	100.0

Source: Planning Survey Motor Vehicle Use Study & Loadometer Data 1953.

[1] Includes out of State vehicles.

Table 42

APPORTIONMENT OF STATE CONSTRUCTION FUNDS FOR FEDERAL-AID PRIMARY SYSTEM

For FY 1954, 1955, 1956, and 1957

Financial District	FY 1954		FY 1955		FY 1956		FY 1957	
	Incompleted Mileage	Percent	Incompleted Mileage	Percent	Incompleted Mileage	Percent	Incompleted Mileage	Percent
1.	162.246	8.0064	154.708	7.9086	148.482	8.0012	142.770	8.0730
2.	137.019	6.7616	128.379	6.5626	117.381	6.3252	115.498	6.5309
3.	176.342	8.7020	174.206	8.9053	175.302	9.4464	166.465	9.4129
4.	229.671	11.3337	219.146	11.2026	208.786	11.2507	191.989	10.8561
5.	138.602	6.8397	130.749	6.6838	121.941	6.5709	111.566	6.3086
6.	146.088	7.2091	137.063	7.0065	142.511	7.6794	133.642	7.5569
7.	107.332	5.2966	110.672	5.6575	112.118	6.0416	108.827	6.1537
8.	225.882	11.1467	225.120	11.5079	208.498	11.2352	200.862	11.3579
9.	147.990	7.3029	131.463	6.7203	134.259	7.2347	129.701	7.3340
10.	190.645	9.4079	186.853	9.5518	174.220	9.3881	179.018	10.1227
11.	178.691	8.8180	177.608	9.0792	147.555	7.9512	145.498	8.2272
12.	185.935	9.1754	180.244	9.2139	164.707	8.8754	142.646	8.0660
Total	2,026.443	100.0000	1,956.211	100.0000	1,855.760	100.0000	1,768.482	100.0000

Table 41

COMPUTATION OF FACTORS AND PERCENTAGES FOR APPORTIONING
STATE CONSTRUCTION FUNDS FOR THE FEDERAL AID SECONDARY SYSTEM
FOR THE FISCAL YEAR BEGINNING JULY 1, 1956 AND ENDING JUNE 30, 1957

July 23, 1956

	QUANTITY DISTRIBUTION OF FACTORS BY COUNTY AND FINANCIAL DISTRICT								PERCENTAGE DISTRIBUTION OF FACTORS				
COUNTY AND FINANCIAL DISTRICT	1950 VEHICLE REGISTR. (1)	1955 VEHICLE REGISTR. (2)	RATIO OF CHANGE IN VEHICLE REGISTR. COL.2 ÷ COL. 1 (3)	1950 RURAL POPUL. (4)	ADJUSTED 1955 RURAL POPULATION (5)	1955 LAND AREA (6)	1955 RURAL ROAD MILEAGE (7)	1955 VALUE OF RURAL LANDS (8)	ADJUSTED 1955 RURAL POPULATION (9)	1955 LAND AREA (10)	1955 RURAL ROAD MILEAGE (11)	1955 VALUE OF RURAL LANDS (12)	COMBINATION OF FOUR FACTORS (13)
Flathead	13,835	19,253	1,3916	21,758	30,278	5,177	1,323.673	7,428,300	6.4312	3.5554	2.0169	2.6015	3.6513
Lake	5,550	6,755	1.2171	13,835	16,839	1,500	909.637	5,046,355	3.5767	1.0301	1.3860	1.7673	1.9400
Lincoln	3,433	5,850	1.7040	8,693	14,813	3,715	1,150.114	3,621,093	3.1464	2.5514	1.7525	1.2682	2.1726
Fin. Dist. No. 1	22,818	31,858	1.4004	44,286	61,930	10,392	3,383.424	16,095,748	13,1543	7.1369	5.1554	5.6370	7.7709
Blaine	3,346	4,013	1.1993	8,516	10,213	4,267	2,488.557	6,349,425	2.1693	2.9305	3.7919	2.2238	2.7789
Glacier	4,299	5,600	1.3026	9,645	12,564	2,974	1,114.798	2,845,606	2.6687	2.0424	1.6987	0.9965	1.8516
Hill	6,578	9,464	1.4387	6,199	8,919	2,926	2,731.546	8,732,677	1,8945	2.0095	4.1622	3.0584	2.7812
Liberty	1,559	2,805	1.7992	2,180	3,922	1,459	1,151,935	5,984,168	0.8330	1.0020	1.7552	2.0958	1.4215
Toole	4,094	5,395	1.3178	6,867	9,049	1,965	1,542.416	4,729,881	1.9221	1.3495	2.3502	1.6565	1.8195
Fin. Dist. No. 2	19,876	27,277	1.3370	33,407	44,667	13,591	9,029.252	28,641,757	9.4876	9.3339	13.7582	10.0310	10.6527
Daniels	2,319	3,130	1.3497	3,946	5,326	1,443	1,020.101	5,189,047	1.1313	0.9910	1.5544	1.8174	1.3735
Phillips	3,201	4,120	1.2871	6,334	8,152	5,229	1,894.510	5,262,944	1.7315	3.5911	2.8867	1.8432	2.5131
Roosevelt	4,715	7,021	1.4891	9,580	14,266	2,385	1,437.621	4,951,681	3.0302	1.6380	2.1906	1.7341	2.1482
Sheriden	3,978	4,768	1.1985	6,674	7,999	1,700	1,486.533	6,994,477	1.6991	1.1675	2.2651	2.4497	1.8954
Valley	5,523	7,385	1.3371	11,353	15,180	4,961	2,647.939	6,702,596	3.2243	3.4071	4.0347	2.3474	3.2534
Fin. Dist. No. 3	19,736	26,424	1.3440	37,887	50,923	15,718	8,486.704	29,100,745	10.8164	10.7947	12.9315	10.1918	11.1836
Dawson	4,363	7,153	1.6394	3,838	6,292	2,358	1,185.238	5,828,799	1.3365	1.6194	1.8060	2.0413	1.7008
McCone	2,037	2,734	1.3421	3,258	4,373	2,594	1,843.673	5,865,646	0.9288	1.7815	2.8093	2.0543	1.8935
Prairie	1,212	1,565	1.2912	2,377	3,069	1,727	724.117	2,631,526	0.6519	1.1861	1.1034	0.9216	0.9658
Richland	4,983	6,087	1.2216	10,366	12,663	2,065	1,198.883	5,385,033	2.6897	1.4182	1.8268	1.8860	1.9552
Wibaux	1,090	1,377	1.2633	1,907	2,409	889	632.868	2,510,236	0.5117	0.6105	0.9642	0.8791	0.7413
Fin. Dist. No. 4	13,685	18,916	1.3246	21,746	28,806	9,633	5,584.779	22,221,240	6.1186	6.6157	8.5097	7.7823	7.2566
Fergus	7,244	8,742	1.2067	7,442	8,980	4,244	1,934.579	13,334,356	1.9074	2.9146	2.9478	4.6700	3.1099
Garfield	1,090	1,247	1.1440	2,172	2,485	4,595	1,415.209	4,293,769	0.5279	3.1557	2.1564	1.5038	1.8360
Petroleum	645	769	1.1922	1,026	1,223	1,651	729.334	1,594,386	0.2597	1.1339	1.1113	0.5584	0.7658
Fin. Dist. No. 5	8,979	10,758	1.1924	10,640	12,688	10,490	4,079.122	19,222,511	2.6950	7.2042	6.2155	6.7322	5.7117
Cascade	21,528	29,250	1.3586	12,364	16,798	2,659	1,329.723	10,276,985	3.5681	1.8261	2.0261	3.5992	2.7549
Chouteau	4,881	6,589	1.3499	6,974	9,414	3,920	2,977.240	12,690,815	1.9996	2.6921	4.5365	4.4446	3.4182
Judith Basin	2,258	2,547	1.1279	3,200	3,609	1,880	993.853	7,596,293	0.7665	1.2911	1.5144	2.6604	1.5581
Pondera	4,142	5,126	1.2375	6,392	7,910	1,643	1,191.783	7,544,080	1.6802	1.1284	1.8160	2.6421	1.8167
Teton	4,680	5,793	1.2378	7,232	8,952	2,294	1,615.710	8,421,207	1.9014	1.5755	2.4619	2.9493	2.2220
Fin. Dist. No. 6	37,489	49,305	1.2909	36,162	46,683	12,396	8,108.309	46,529,380	9.9158	8.5132	12.3549	16.2956	11.7699
Broadwater	1,660	1,983	1.1945	2,922	3,490	1,243	817.524	2,601,609	0.7413	0.8537	1.2457	0.9112	0.9380
Jefferson	1,601	2,040	1.2742	4,014	5,115	1,651	730.103	1,241,038	1.0865	1.1338	1.1125	0.4346	0.9419
Lewis and Clerk	10,687	12,994	1.2158	6,959	8,461	3,477	1,170.271	4,063,512	1.7972	2.3879	1.7832	1.4232	1.8478
Fin. Dist. No. 7	13,948	17,017	1.2282	13,895	17,066	6,371	2,717.898	7,906,159	3.6250	4.3754	4.1414	2.7690	3.7277
Granite	1,367	1,875	1.3716	2,773	3,803	1,733	486.498	2,421,086	0.8078	1.1902	0.7413	0.8479	0.8968
Mineral	861	1,552	1.8025	2,081	3,751	1,223	448.651	590,561	0.7967	0.8399	0.6836	0.2068	0.6318
Missoula	14,340	20,115	1.4027	9,574	13,429	2,613	949.676	4,574,280	2.8524	1.7945	1.4471	1.6020	1.9240
Powell	2,959	4,157	1.4048	6,301	8,852	2,337	665.088	4,550,629	1.8803	1.6050	1.0134	1.5937	1.5231
Ravalli	5,852	7,074	1.2088	13,101	15,836	2,384	853.460	4,252,289	3.3636	1.6373	1.3004	1.4893	1.9476
Sanders	3,056	4,059	1.3282	6,983	9,275	2,811	1,056.188	3,204,889	1.9701	1.9305	1.6094	1.1224	1.6581
Fin. Dist. No. 8	28,435	38,832	1.3462	40,813	54,946	13,101	4,459.561	19,593,734	11.6709	8.9974	6.7952	6.8621	8.5814
Beaverhead	3,464	4,185	1.2081	6,671	8,059	5,556	1,328.956	4,658,799	1.7118	3.8157	2.0250	1.6316	2.2960
Deer Lodge	5,424	7,378	1.3602	5,299	7,208	738	253.041	1,820,735	1.5310	0.5069	0.3856	0.6377	0.7653
Madison	2,930	3,170	1.0819	5,998	6,489	3,530	1,208.200	4,577,693	1.3783	2.4243	1.8410	1.6032	1.8117
Silver Bow	16,333	21,668	1.3266	6,514	8,641	716	341.020	789,650	1.8354	0.4917	0.5195	0.2766	0.7808
Fin. Dist. No. 9	28,151	36,401	1.2416	24,482	30,397	10,540	3,131.217	11,846,877	6.4565	7.2386	4.7711	4.1491	5.6538
Gallatin	10,389	12,912	1.2428	10,577	13,145	2,517	1,203.664	9,267,860	2.7921	1.7286	1.8341	3.2458	2.4002
Meagher	1,127	1,538	1.3646	2,079	2,837	2,354	742.363	3,866,090	0.6026	1.6167	1.1312	1.3540	1.1761
Park	5,956	7,251	1.2174	4,316	5,254	2,627	718.049	4,784,794	1.1160	1.8041	1.0941	1.6757	1.4225
Sweetgrass	2,023	2,261	1.1176	3,621	4,047	1,846	554.100	4,132,332	0.8596	1.2678	0.8443	1.4472	1.1047
Wheatland	1,802	1,945	1.0793	3,187	3,440	1,422	630.682	3,197,092	0.7307	0.9766	0.9609	1.1197	0.9470
Fin. Dist. No. 10	21,297	25,907	1.2078	23,780	28,723	10,766	3,848.858	25,248,168	6.1010	7.3938	5.8646	8.8424	7.0505
Big Horn	4,435	5,239	1.1812	9,824	11,604	5,033	1,253.078	4,753,257	2.4648	3.4565	1.9094	1.6647	2.3738
Carbon	4,417	5,114	1.1577	10,241	11,856	2,070	980.005	7,097,300	2.5183	1.4216	1.4933	2.4857	1.9797
Golden Valley	773	845	1.0931	1,337	1,461	1,178	715.452	2,167,111	0.3103	0.8090	1.0902	0.7589	0.7421
Musselshell	2,644	2,985	1.1289	5,408	6,105	1,886	1,072.480	2,983,060	1.2968	1.2952	1.6342	1.0448	1.3178
Stillwater	2,833	3,562	1.2573	5,416	6,810	1,797	995.040	5,735,887	1.4465	1.2341	1.5162	2.0088	1.5514
Treasure	717	935	1.3040	1,402	1,828	984	376.527	2,103,677	0.3883	0.6758	0.5737	0.7368	0.5937
Yellowstone	25,323	38,618	1.5250	19,864	30,293	2,635	1,851.155	11,222,031	6.4344	1.8097	2.8205	3.9302	3.7487
Fin. Dist. No. 11	41,142	57,298	1.3078	53,492	69,957	15,583	7,243.737	36,062,323	14.8594	10.7019	11.0375	12.6299	12.3072
Carter	1,280	1,739	1.3585	2,798	3,801	3,313	818.767	4,881,846	0.8073	2.2753	1.2476	1.7097	1.5099
Custer	5,803	7,003	1.2067	3,418	4,125	3,765	994.316	5,060,273	0.8762	2.5857	1.5151	1.7722	1.6873
Fallon	1,931	2,793	1.4464	3,660	5,294	1,633	944.367	3,297,337	1.1245	1.1215	1.4390	1.1548	1.2099
Powder River	1,502	1,815	1.2083	2,693	3,254	3,285	1,111.598	4,350,778	0.6912	2.2560	1.6938	1.5238	1.5412
Rosebud	2,649	3,038	1.1468	6,570	7,534	5,032	1,686.398	5,473,947	1.6003	3.4558	2.5695	1.9171	2.3857
Fin. Dist. No. 12	13,165	16,388	1.2544	19,139	24,008	17,028	5,555.446	23,064,181	5.0995	11.6943	8.4650	8.0776	8.3340
State Total	268,721	356,381	1.3090	359.729	470.794	145,609	65,628.307	285,532,824	100.0000	100.0000	100.0000	100.0000	100.0000

Table 43
WEIGHT-MILE TAX RATES, OTHER STATES

Gross Weight	Oregon				Idaho	
	Schedule A		Schedule B			
	Vehicle Mile Fee	Ton Mile Rate	Vehicle Mile Fee	Ton Mile Rate	Vehicle Mile Fee	Ton Mile Rate
	(mills)	(mills)	(mills)	(mills)	(mills)	(mills)
0 - 6,000	1.5	0.60	5.5	2.20	......	......
6,000 - 8,000	2.5	0.71	7.0	2.00	......	......
8,000 - 10,000	3.5	0.78	8.5	1.89	......	......
10,000 - 12,000	4.5	0.81	10.0	1.81	......	......
12,000 - 14,000	5.5	0.85	11.5	1.77	......	......
14,000 - 16,000	6.5	0.86	13.0	1.73	......	......
16,000 - 18,000	7.5	0.88	14.5	1.70	5.25	0.61
18,000 - 20,000	8.5	0.89	16.0	1.68	5.95	0.62
20,000 - 22,000	9.5	0.90	17.5	1.66	6.65	0.70
22,000 - 24,000	10.5	0.91	19.0	1.65	7.35	0.70
24,000 - 26,000	11.5	0.92	20.5	1.64	8.05	0.64
26,000 - 28,000	12.5	0.93	22.0	1.63	8.75	0.65
28,000 - 30,000	13.5	0.93	23.5	1.62	9.45	0.65
30,000 - 32,000	14.5	0.93	25.0	1.61	10.15	0.65
32,000 - 34,000	15.5	0.94	26.5	1.60	10.85	0.66
34,000 - 36,000	16.5	0.94	28.0	1.60	11.55	0.66
36,000 - 38,000	17.5	0.94	29.5	1.59	12.25	0.66
38,000 - 40,000	19.0	0.97	31.0	1.58	13.30	0.68
40,000 - 42,000	20.5	1.00	32.5	1.59	14.35	0.70
42,000 - 44,000	22.0	1.02	34.0	1.58	15.40	0.71
44,000 - 46,000	23.5	1.04	36.0	1.60	16.45	0.73
46,000 - 48,000	25.0	1.06	38.0	1.61	17.50	0.74
48,000 - 50,000	26.5	1.08	40.0	1.63	18.55	0.75
50,000 - 52,000	28.0	1.09	42.0	1.64	19.60	0.76
52,000 - 54,000	29.5	1.11	44.0	1.66	20.65	0.79
54,000 - 56,000	31.0	1.12	46.0	1.67	21.70	0.79
56,000 - 58,000	32.5	1.14	48.0	1.68	22.75	0.79
58,000 - 60,000	34.0	1.15	50.0	1.69	23.80	0.80
60,000 - 62,000	35.5	1.16	52.0	1.70	24.85	0.81
62,000 - 64,000	37.0	1.17	54.0	1.71	25.90	0.82
64,000 - 66,000	38.5	1.18	56.0	1.72	26.95	0.83
66,000 - 68,000	40.0	1.19	58.0	1.73	28.00	0.84
68,000 - 70,000	41.5	1.20	60.0	1.74	29.05	0.84
70,000 - 72,000	43.0	1.21	62.0	1.74	30.10	0.85
72,000 - 74,000	45.5	1.24	65.0	1.78	31.85	0.87
74,000 - 76,000	48.0	1.28	68.0	1.81	33.60	0.89
76,000 - 78,000	......	......	......	......	35.35	......
78,000 - 80,000	......	......	......	......	37.10	......

Table 44
WEIGHT TAX BASIS FOR LICENSING MOTOR TRUCKS AND COMBINATIONS IN THE VARIOUS STATES

Declared Maximum Gross Weight

Arkansas
Connecticut
Delaware
Idaho
Illinois
Indiana
Iowa
Kentucky
Louisiana
Maine
Massachusetts
Mississippi
Missouri
Montana
Nebraska
New Hampshire
New Jersey
New York[2]
North Carolina
North Dakota
Oklahoma
Pennsylvania
Rhode Island
Tennessee
Vermont
Virginia
Washington
West Virginia
Wisconsin

Empty, Actual or Unladen Weight

Arizona
California
Colorado
Florida
Maryland
Michigan
Minnesota
Nevada
New Mexico
Ohio
Oregon
South Carolina
South Dakota
Texas
Utah
Wyoming

Manufacturer's Rated Capacity

Alabama
Georgia[1]
Kansas[3]

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[1] Trailers by empty weight.
[2] Tractors by unladen weight.
[3] Not less than rated capacity nor more than double.

Table 45

INCREASE IN MOTOR VEHICLE REGISTRATION IN WESTERN STATES, 1947-1955[1]

State	Automobiles			Buses			Trucks			Total		
	1947	1955	% Increase	1947	1955	% Increase	1947	1955	% Increase	1947	1955	% Increase
Arizona	144,496	322,487	123	1,227	1,598	30	45,196	90,553	100	190,919	414,638	117
California	3,008,353	5,299,589	76	8,229	12,097	47	510,546	877,336	72	3,527,128	6,189,022	75
Colorado	328,408	566,909	73	1,753	3,056	74	99,433	167,443	68	429,594	737,408	72
Idaho	140,877	242,027	72	505	969	92	54,007	94,518	75	195,389	337,514	73
Montana	132,615	230,677	74	743	1,249	68	65,123	104,168	60	198,481	336,094	69
Nevada	45,057	94,505	110	244	398	63	13,442	28,765	114	58,743	123,668	111
New Mexico	113,968	251,587	121	1,619	2,086	29	42,801	86,533	102	158,388	340,206	115
Oregon	407,805	727,532	[1]	2,604	2,869	10	121,466	72,043	[1]	531,875	802,444	51
Utah	149,548	269,365	80	921	939	2	38,079	65,853	73	188,548	336,157	78
Washington	580,993	935,977	61	3,031	3,617	19	143,100	223,950	56	727,124	1,163,544	60
Wyoming	73,964	118,529	60	712	1,188	67	27,582	53,872	95	102,258	173,589	70

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[1] Comparison for Oregon not feasible because trucks under 6,000 pounds were classified as trucks in 1947 and as automobiles in 1955.

Table 46

BASIS FOR REGISTRATION OF PASSENGER CARS

	EMPTY WEIGHT OR SHIPPING WEIGHT	
FLAT FEE: Alabama Arizona California Connecticut Kentucky Louisiana Nevada Ohio Oregon Pennsylvania Utah Virginia Washington Wisconsin Wyoming FLAT FEE AND AGE. Idaho Vermont	WEIGHT GROUPS: Delaware Florida Maryland Montana Nebraska New Jersey North Carolina Tennessee Texas District of Columbia WEIGHT GROUPS AND HORSEPOWER: Indiana WEIGHT GROUPS AND AGE: Minnesota North Dakota South Dakota	100-POUND INTERVALS: Colorado Michigan New York West Virginia 100-POUND INTERVALS AND AGE: New Mexico 100-POUND INTERVALS, VALUE AND AGE: Iowa 500-POUND INTERVALS: Georgia South Carolina
HORSEPOWER GROUPS: Illinois Maine Massachusetts Missouri	**GROSS WEIGHT:** WEIGHT GROUPS: New Hampshire Rhode Island	FACTORY DELIVERED PRICE AND AGE: Oklahoma
	WEIGHT GROUPS AND HORSEPOWER: Arkansas 100-POUND INTERVALS: Kansas	FLAT FEE, HORSEPOWER, GROSS WEIGHT, AND AGE: Mississippi

Table 47

DATA USED IN COMPUTING STATE ROAD-USER TAXES AND PROPERTY TAXES ON SELECTED VEHICLES, 1956 REGISTRATION YEAR

Factors Affecting Taxation	Passenger Cars	Single Unit Trucks		Tractor-Semitrailer Combinations								Tractor-Semitrailer and Full Trailer		
	No. 1 Medium	No. 2 Stake	No. 3 Van	No. 4		No. 5 (gasoline)		No. 6 (diesel)		No. 7 (diesel)		No. 8 (diesel)		
				Tractor-Truck	Semi-Trailer	Tractor-Truck	Semi-Trailer	Tractor-Truck	Semi-Trailer	Tractor-Truck	Semi-Trailer	Tractor-Truck	Semi-Trailer	Full Trailer
Body type	Four-door, 6-pass.	Stake	Van	Tractor	28-ft. van	Tractor	33-ft. van	Tractor	32-ft. van	Tractor	35-ft. van	Tractor	24-ft. van	24-ft. van
Price F. O. B. factory (1954)	$ 2,555	$ 2,217	$ 5,263	$ 5,631	$ 5,200	$ 7,150	$ 5,785	$10,868	$ 8,087	$16,346	$ 8,788	$18,312	$ 4,800	$ 6,800
Horsepower, N. A. C. C. (S. A. E.)	51.20	30.40	46.51	46.20	......	38.40	......	40.84	......	45.90	......	40.84	......	......
Horsepower, Maximum Brake	195	108	153	155	......	145	......	200	......	165	......	200	......	......
Weight:														
Manufacturer's rated capacity, tons	......	1½	2¾	......	......	......	......	......	......	......	......	......	......	......
Chassis weight, pounds	......	3,730	5,477	......	......	......	......	......	......	......	......	......	......	......
Empty weight "	3,805	5,488	7,675	7,915	7,300	9,620	7,470	10,050	9,000	17,015	9,500	11,300	6,585	9,560
Load capacity "	......	7,012	11,325	14,085	10,700	13,380	19,530	12,950	18,000	18,985	16,500	13,700	8,415	22,440
Gross vehicle weight "	4,705	12,500	19,000	22,000	18,000	23,000	27,000	23,000	27,000	36,000	26,000	25,000	15,000	32,000
Gross weight of combination "	......	......	......	40,000	......	50,000	......	50,000	......	62,000	......	72,000	......	......
Length:														
Wheelbase inches	......	154	174	147	......	142	......	140	......	145-50	......	(1)	(1)	(1)
Distance between tandem axles "	......	......	......	......	......	......	48½	......	48½	50	48½	......	......	......
Length of combination feet	......	......	......	39	......	43	......	43	......	49	......	60	......	......
Tires:														
Size	......	7.50x20	9.00x20	10.00x20	10.00x20	10.00x20	10.00x20	10.00x20	10.00x20	10.00x20	10.00x20	10.00x20	10.00x20	10.00x20
Ply rating	......	8	10	12	12	12	12	12	12	14	14	12	12	12
Arrangement: front	......	Single	Single	Single	......	Single	......	Single	......	Single	......	Single	......	Dual
rear	......	Dual	Dual	Dual	Dual	Dual	Dual-tandem	Dual	Dual-tandem	Dual-tandem	Dual-tandem	Dual	Dual	Dual
Total annual travel:														
Farm service miles	......	5,500	......	......	......	......	......	......	......	......	......	......	......	......
Private operation "	10,500	12,000	15,000	40,000	......	60,000	......	60,000	......	70,000	......	70,000	......	......
Contract carrier "	......	20,000	25,000	40,000	......	60,000	......	60,000	......	70,000	......	70,000	......	......
Average miles per gallon:														
Farm service gallons	......	10.0	......	......	......	......	......	......	......	......	......	......	......	......
Private operation "	14.5	9.0	6.5	5.0	......	4.0	......	6.0	......	4.7	......	4.3	......	......
Contract carrier "	......	9.0	6.5	5.0	......	4.0	......	6.0	......	4.7	......	4.3	......	......
Annual motor-fuel consumption														
Farm service gallons	......	550	......	......	......	......	......	......	......	......	......	......	......	......
Private operation "	724	1,333	2,307	8,000	......	15,000	......	10,000	......	14,894	......	16,279	......	......
Contract carrier "	......	2,222	3,846	8,000	......	15,000	......	10,000	......	14,894	......	16,279	......	......
Total revenue ton miles (avg. load)	......	39,000	78,000	297,000	......	642,000	......	604,000	......	918,000	......	1,123,000	......	......
Average gross weight pounds	......	9,345	13,904	30,086	......	38,482	......	39,168	......	52,755	......	59,525	......	......
Gross annual earnings	......	$8,200	$12,000	$24,000	......	$49,000	......	$47,000	......	$70,000	......	$79,000	......	......

[1] The distance between axles on vehicles number 8 are as follows: 1st and 2nd—114 inches
2nd and 3rd—221 inches
3rd and 4th—98 3/4 inches
4th and 5th—233 inches

Source: Bureau of Public Roads.

Table 48

HIGHWAY USER TAXES AND PROPERTY TAXES ON TYPICAL VEHICLES IN PRIVATE OPERATION IN 11 WESTERN STATES

No. Vehicles and Taxes	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Oregon	Utah	Washington	Wyoming
Highway User Fees[1]											
1. Medium Passenger Car	$ 40	$ 83	$ 51	$ 61	$ 61	$ 49	$ 69	$ 53	$ 41	$ 82	$ 41
2. Farm Stake Truck	59	108	48	63	53	61	67	61	63	77	43
2. Private Stake Truck	98	155	104	110	121	222	131	184	102	141	117
3. Van	169	276	183	283	211	329	227	319	180	267	215
4. Three Axle Combination (gas)	507	709	1,341	1,114	660	856	657	1,347	605	763	826
5. Four Axle Combination (gas)	879	1,266	2,618	2,115	1,270	1,318	1,106	2,610	1,030	1,402	1,424
6. Four Axle Combination (diesel)	675	1,160	2 289	1,815	1,120	1,065	856	2,534	780	1,143	1,164
7. Five Axle Combination (diesel)	1,009	1,749	3,496	2,735	1,805	1,594	1,281	[3]	1,125	1,824	1,812
8. Five Axle Combination (diesel) 3-unit	1,054	1,849	4,020	3,188	2,180	1,657	1,314	[3]	1,284	1,780	2,181
Property Taxes		[2]		[2]			[2]	[2]		[2]	
1. Medium Passenger Car	$ 35	$	$ 31	$	$ 70	$ 56	....	....	$ 42	....	$ 31
2. Farm Stake Truck	30	....	26	....	38	32	....	....	32	....	26
2. Private Stake Truck	30	....	27	....	61	32	....	....	32	....	27
3. Van	71	....	63	....	145	75	....	....	65	....	63
4. Three Axle Combination (gas)	147	....	130	....	298	244	....	....	151	....	130
5. Four Axle Combination (gas)	175	....	155	....	356	223	....	....	167	....	155
6. Four Axle Combination (diesel)	256	....	227	....	522	355	....	....	273	....	227
7. Five Axle Combination (diesel)	339	....	302	....	692	566	....	....	391	....	302
8. Five Axle Combination(diesel) 3-unit	404	....	359	....	823	673	....	....	477	....	359
Total Taxes and Fees											
1. Medium Passenger Car	$ 75	$ 83	$ 82	$ 61	$ 131	$ 105	$ 69	$ 53	$ 83	$ 82	$ 72
2. Farm Stake Truck	89	108	74	63	91	93	67	61	95	77	69
2. Private Stake Truck	128	155	131	110	182	254	131	184	134	141	144
3. Van	240	276	246	283	356	404	227	319	245	267	278
4. Three Axle Combination (gas)	654	709	1,471	1,114	958	1,100	657	1,347	756	763	956
5. Four Axle Combination (gas)	1,054	1,266	2,773	2,115	1,626	1,541	1,106	2,610	1,197	1,402	1,579
6. Four Axle Combination (diesel)	931	1,160	2,516	1,815	1,642	1,420	856	2,534	1,053	1,143	1,391
7. Five Axle Combination (diesel)	1,348	1,749	3,798	2,735	2,497	2,160	1,281	[3]	1,516	1,824	2,114
8. Five Axle Combination (diesel) 3-unit	1,458	1,849	4,379	3,188	3,003	2,330	1,314	[3]	1,761	1,780	2,540

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[1] Includes registration fee, fuel taxes, special weight fees, weight mile fees, carrier taxes and fees, and other miscellaneous charges.

[2] Registration fees are in lieu of all property tax on motor vehicles in Idaho, New Mexico, and Oregon. In California and Washington a special excise tax paid at time of registration has many of the aspects of a property tax but has been included here as "other highway user fees."

[3] Not a legal vehicle in Oregon.

Source: Data Assembled by Bureau of Public Roads.

Table 49

HIGHWAY USER TAXES ON TYPICAL VEHICLES IN FOR-HIRE OPERATION IN 11 WESTERN STATES

No. Vehicles and Taxes	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Oregon	Utah	Washington	Wyoming
Highway User Fees[1]											
Stake Truck	$ 348	$ 462	$ 274	$ 163	$ 235	$ 275	$ 185	$ 263	$ 146	$ 213	$ 183
Van	546	736	482	434	390	421	320	497	257	385	331
Three Axle Combination	1,107	1,514	1,341	1,114	790	856	656	1,347	605	799	826
Four Axle Combination (gas)	2,104	2,794	2,618	2,115	1,525	1,318	1.106	2.610	1,030	1,443	1,424
Four Axle Combination (diesel)	1,851	2,612	2,289	1,815	1,365	1,065	856	2,534	780	1,186	1,164
Five Axle Combination (diesel)	2,759	3,888	3,496	2,735	2,165	1,594	1,281	[3]	1,125	1,871	1,812
Five Axle Combination (diesel) 3-unit	3,274	4,304	4,020	3,188	2,585	1,657	1,314	[3]	1,284	1,841	2,181
Property Taxes		[2]		[2]			[2]	[2]		[2]	
Stake Truck	$ 30	$	$ 27	$	$ 61	$ 32	$	$	$ 32	$	$ 27
Van	71	....	63	....	145	75	....	....	65	....	63
Three Axle Combination	147	....	130	....	298	244	....	....	151	....	130
Four Axle Combination (gas)	175	....	155	....	356	233	....	....	167	....	155
Four Axle Combination (diesel)	256	....	227	....	522	355	....	....	273	....	227
Five Axle Combination (diesel)	339	....	302	....	692	566	....	[3]	391	....	302
Five Axle Combination (diesel) 3-unit	404	....	359	....	823	673	....	[3]	477	....	359
Total Taxes and Fees											
Stake Truck	$ 378	$ 462	$ 301	$ 163	$ 296	$ 307	$ 185	$ 263	$ 178	$ 213	$ 210
Van	617	736	545	434	535	496	320	497	322	385	394
Three Axle Combination	1,254	1,514	1,471	1,114	1,088	1,100	656	1,347	756	799	956
Four Axle Combination (gas)	2,279	2,794	2,773	2,115	1,881	1,551	1,106	2,610	1,197	1,443	1,579
Four Axle Combination (diesel)	2,107	2,612	2,516	1,815	1,887	1,420	856	2,534	1,053	1,186	1,391
Five Axle Combination (diesel)	3,098	3,888	3,798	2,735	2,857	2,160	1,281	[3]	1,516	1,871	2,114
Five Axle Combination (diesel) 3-unit	3,678	4,304	4,379	3,188	3,408	2,330	1,314	[3]	1,761	1,841	2,540

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[1] Includes registration fees, fuel taxes, special weight fees weight mile fees, carrier taxes and fees, and other miscellaneous charges.

[2] Registration fees are in lieu of all property tax on motor vehicles in Idaho, New Mexico, and Oregon. In California and Washington a special excise tax paid at time of registration has many of the aspects of a property tax but has been included here as "Other highway use fees."

[3] Not a legal vehicle in Oregon.

Source: Data Assembled by Bureau of Public Roads.

Table 50

RECEIPTS FOR STATE ADMINISTERED HIGHWAYS ALL STATES 1954

State	Total Receipts (000)	Population (000)	Per Capita Receipts	State Administered Miles	Receipts Per Mile
Alabama	$ 34,181	3,140	$10.89	12,118	$ 2,820.68
Arizona	22,304	1,023	21.80	3,978	5,606.84
Arkansas	42,811	1,916	22.34	10,085	4,245.02
California	306,342	12,904	23.74	13,767	22,251.91
Colorado	36,272	1,459	24.86	7,958	4,557.93
Connecticut	139,681	2,251	62.05	3,217	4,541.65
Delaware	24,730	373	66.30	3,948	6,263.93
Florida	85,340	3,636	23.47	12,298	6,939.34
Georgia	74,768	3,671	20.37	15,134	4,940.40
Idaho	20,054	620	32.35	4,746	4,225.45
Illinois	126,779	9,239	13.72	12,287	10,378.14
Indiana	332,536	4,276	77.77	10,657	31,203.53
Iowa	53,037	2,644	20.06	9,830	5,395.42
Kansas	201,842	2,038	99.04	9,989	20,206.43
Kentucky	108,230	3,020	35.84	17,621	61,421.03
Louisiana	155,229	2,987	51.97	15,036	10,323.82
Maine	30,571	930	32.87	11,199	2,729.80
Maryland	253,199	2,637	98.02	4,803	52,716.84
Massachusetts	371,787	5,000	74.36	2,290	162,352.40
Michigan	194,000	7,126	27.22	9,355	20,737.54
Minnesota	69,237	3,123	22.17	13,077	5,294.56
Mississippi	45,888	2,219	20.68	7,993	5,741.02
Missouri	84,231	4,191	20.10	22,505	3,742.77
Montana	27,655	635	43.55	9,408	2,939.52
Nebraska	29,128	1,372	21.23	9,904	2,941.03
Nevada	12,554	224	56.04	5,935	2,175.25
New Hampshire	25,802	533	48.41	3,946	6,538.77
New Jersey	273,821	5,312	51.55	2,523	108,529.92
New Mexico	29,697	793	37.45	11,293	2,629.68
New York	636,223	15,539	40.94	13,886	45,817.59
North Carolina	110,097	4,289	25.67	68,955	1,596.65
North Dakota	15,999	638	25.08	6,624	2,415.31
Ohio	177,773	8,655	20.54	18,417	9,652.66
Oklahoma	49,600	2,274	21.81	10,520	4,714.83
Oregon	45,122	1,656	27.25	8,091	5,576.81
Pennsylvania	488,834	10,854	45.04	44,875	10,893.24
Rhode Island	16,268	832	19.55	940	17,306.38
South Carolina	47,582	2,253	22.12	24,359	1,953.36
South Dakota	23,036	669	34.43	6,756	3,409.71
Tennessee	43,652	3,388	12.88	8,553	5,103.71
Texas	161,799	8,579	18.86	47,544	3,333.04
Utah	19,352	766	25.26	5,397	3,585.70
Vermont	10,502	387	27.14	2,023	5,191.30
Virginia	187,834	3,651	51.45	49,246	3,814.20
Washington	60,994	2,560	23.83	6,519	9,356.34
West Virginia	85,575	1,950	43.88	31,709	2,698.76
Wisconsin	49,487	3,602	13.74	11,393	4,343.63
Wyoming	16,133	316	51.05	4,956	3,255.25
	$5,457,568	162,150	$33.66	647,663	$ 8,426.56

Source: Finance and Mileage figures from publication of Bureau of Public Roads.

Table 51

MOTOR FUEL TAX RATES AND TAX COLLECTIONS
ALL STATES 1954-1955

State	Tax Rates, Dec. 31, 1955 Gasoline	Special Fuels	1955 Net Collections	1955 Vehicles Registered	Per Vehicle Collection
	(cents)	(cents)	(000)		
Alabama	7	7	$ 54,954	1,041,241	$52.78
Arizona	5	5	17,298	414,638	41.72
Arkansas	6.5	6.5	32,040	584,250	54.84
California	6	6 & 7	263,654	6,189,022	42.60
Colorado	6	6	30,195	737,408	40.95
Connecticut	6	6	32,194	921,229	34.95
Delaware	5	5	6,434	153,881	41.81
Florida	7	7	87,849	1,615,652	54.37
Georgia	6.5	6.5	65,843	1,239,918	53.10
Idaho	6	6	13,389	337,514	39.67
Illinois	5	5	125,249	3,268,398	38.32
Indiana	4	4	59,575	1,762,750	33.80
Iowa	6	6 & 7	47,986	1,194,864	40.16
Kansas	5	5	33,834	1,047,764	32.29
Kentucky	7	7	49,445	1,032,405	47.89
Louisiana	7	7	50,425	951,671	52.99
Maine	7	7	18,416	322,674	57.07
Maryland	6	6	42,654	938,295	45.46
Massachusetts	5	5	54,842	1,546,234	35.47
Michigan	6	6	114,816	3,114,101	36.87
Minnesota	5	5	46,694	1,364,863	34.21
Mississippi	7	8	37,665	636,544	59.17
Missouri	3	3	39,889	1,490,056	26.77
Montana	7	7 & 9	16,194	336,094	48.18
Nebraska	6	6	30,115	662,030	45.59
Nevada	5	6	6,096	123,668	49.29
New Hampshire	5	5	8,060	212,452	37.94
New Jersey	4	4	67,192	2,060,963	32.60
New Mexico	6	6	18,575	340,206	54.60
New York	4	4 & 6	123,063	4,642,728	26.51
North Carolina	7	7	87,059	1,437,177	60.58
North Dakota	6	6	11,481	308,599	37.20
Ohio	5	5	133,412	3,525,949	37.84
Oklahoma	6.5	6.5	49,775	1,025,788	48.52
Oregon	6	6	32,691	802,444	40.74
Pennsylvania	6	6	140,741	3,737,260	37.66
Rhode Island	4	4	9,057	308,148	29.39
South Carolina	7	7	42,959	782,187	54.92
South Dakota	5	5	10,651	325,214	32.75
Tennessee	7	7	67,431	1,168,295	57.72
Texas	5	5 & 6.5	132,093	3,868,982	34.14
Utah	5	5	13,657	336,157	40.63
Vermont	5.5	No Tax	6,215	136,307	45.59
Virginia	6	6	62,100	1,242,922	49.96
Washington	6.5	6.5	52,653	1,163,544	45.25
West Virginia	6	6	23,296	552,338	42.18
Wisconsin	6	6	52,645	1,385,931	37.98
Wyoming	5	4 & 5	8,394	173,589	48.35
Dist. of Col.	6	6	12,100	197,051	61.40
	5.35		$2,543,045	62,761,395	$40.52

Source: Publications of Bureau of Public Roads.

Table 52

MOTOR VEHICLE REGISTRATION FEE COLLECTONS ALL STATES—1954

State	Gross Collections (000)	Vehicles Registered	Per Vehicle Collection	State	Gross Collections (000)	Vehicles Registered	Per Vehicle Collection
Alabama ....$	5,210	915,398	$ 5.69	Nebraska ....$	8,628	636,990	$13.54
Arizona	4,174	379,704	10.99	Nevada	931	115,182	8.08
Arkansas	9,560	545,019	17.54	New Hampshire..	4,505	201,967	22.30
California	159,597	5,698,842	28.00	New Jersey	39,020	1,928,077	20.23
Colorado	4,863	682,325	7.12	New Mexico	5,744	309,517	18.55
Connecticut	9,494	867,256	10.94	New York	92,389	4,392,875	21.03
Delaware	2,712	139,726	19.40	North Carolina....	25,079	1,304,252	19.22
Florida	29,034	1,407,697	20.62	North Dakota	6,379	299,685	21.28
Georgia	6,524	1,133,528	5.75	Ohio	61,231	3,300,486	18.55
Idaho	3,403	314,823	10.81	Oklahoma	24,331	963,423	25.25
Illinois	63,712	3,087,792	20.63	Oregon	10,475	764,849	13.69
Indiana	26,275	1,682,430	15.61	Pennsylvania	53,919	3,553,981	15.18
Iowa	36,110	1,143,540	31.57	Rhode Island	4,703	294,072	15.99
Kansas	12,465	1,001,602	12.44	South Carolina ..	5,572	719,706	7.74
Kentucky	7,162	957,596	7.47	South Dakota	6,699	314,636	21.29
Louisiana	7,978	873,800	9.13	Tennessee	13,142	1,118,185	11.74
Maine	6,263	306,002	20.46	Texas	64,708	3,506,599	18.45
Maryland	11,884	871,005	13.64	Utah	3,140	306,646	10.23
Massachusetts	13,269	1,479,889	8.96	Vermont	4,640	131,287	35.34
Michigan	52,742	2,847,745	18.52	Virginia	15,378	1,153,113	13.33
Minnesota	28,817	1,306,491	22.05	Washington	26,362	1,085,158	24.29
Mississippi	8,118	584,530	13.88	West Virginia	11,827	513,409	23.03
Missouri	24,491	1,433,878	17.08	Wisconsin	33,082	1,336,771	24.74
Montana	5,104	314,329	16.23	Wyoming	1,623	168,487	9.63
				Dist. of Col.	1,757	195,563	8.98
					$1,064,225	58,589,863	$18.16

Source: Publications of Bureau of Public Roads

Table 53

HIGHWAY USER FEES COLLECTED

All States, 1954

State	Fuel Taxes	Registration Fees	Other Fees and Charges	Total	Vehicles Registered	Per Vehicle Collection
	(000)	(000)	(000)	(000)		
Alabama	$ 45,070	$ 5,210	$ 3,503	$ 53,783	915,398	$58.75
Arizona	15,719	4,174	3,241	23,134	379,704	60.92
Arkansas	30,187	9,560	1,310	41,057	545,019	75.33
California	243,226	159,597	27,154	429,977	5,698,842	75.44
Colorado	27,774	4,863	5,479	38,116	682,325	55.86
Connecticut	24,865	9,494	4,926	39,285	867,256	45.29
Delaware	5,845	2,712	880	9,437	139,726	67.53
Florida	78,950	29,034	5,207	113,191	1,407,697	80.40
Georgia	58,283	6,524	536	65,343	1,133,528	57.64
Idaho	12,609	3,403	1,828	17,840	314,823	56.66
Illinois	114,504	63,712	7,273	185,489	3,087,792	60.07
Indiana	55,539	26,275	5,101	86,915	1,682,430	51.66
Iowa	40,976	36,110	2,100	79,186	1,143,540	69.24
Kansas	32,148	12,465	4,127	48,740	1,001,602	48.66
Kentucky	46,728	7,162	9,647	63,537	957,596	66.35
Louisiana	46,761	7,978	2,706	57,445	873,800	65.74
Maine	16,130	6,263	1,327	23,720	306,002	77.51
Maryland	39,419	11,884	11,281	62,584	871,005	71.85
Massachusetts	53,774	13,269	3,475	70,518	1,479,889	47.65
Michigan	89,540	52,742	5,767	148,049	2,847,745	51.98
Minnesota	43,798	28,817	1,517	74,132	1,306,491	56.74
Mississippi	35,712	8,118	966	44,796	584,530	76.63
Missouri	37,346	24,491	2,653	64,490	1,433,878	44.97
Montana	13,345	5,104	1,401	19,850	314,329	63.15
Nebraska	28,935	8,628	1,062	38,625	636,990	60.63
Nevada	5,227	931	1,793	7,951	115,182	69.02
New Hampshire	7,700	4,505	1,320	13,525	201,967	66.96
New Jersey	53,613	39,020	14,743	107,376	1,928,077	55.69
New Mexico	16,914	5,744	2,242	24,900	309,517	80.44
New York	118,424	92,389	26,716	237,529	4,392,875	54.07
North Carolina	79,999	25,079	2,120	107,198	1,304,252	82.19
North Dakota	8,525	6,379	810	15,714	299,685	52.43
Ohio	123,232	61,231	21,192	205,655	3,300,486	62.31
Oklahoma	46,908	24,331	3,244	74,483	963,423	77.31
Oregon	30,669	10,475	13,351	54,495	764,849	71.24
Pennsylvania	137,451	53,919	12,784	204,154	3,553,981	57.44
Rhode Island	8,333	4,703	1,373	14,409	294,072	48.99
South Carolina	40,403	5,572	1,997	47,972	719,706	66.65
South Dakota	10,875	6,699	2,249	19,823	314,636	63.00
Tennessee	61,483	13,142	2,825	77,450	1,118,185	69.26
Texas	115,251	64,708	23,852	203,811	3,506,599	58.12
Utah	12,537	3,140	824	16,501	306,646	53.81
Vermont	5,600	4,640	621	10,861	131,287	82.72
Virginia	57,602	15,378	3,898	76,878	1,153,113	66.66
Washington	48,779	26,362	5,010	80,151	1,085,158	73.86
West Virginia	20,791	11,827	4,733	37,351	513,409	72.75
Wisconsin	39,364	33,082	2,033	74,479	1,336,771	55.71
Wyoming	8,113	1,623	2,151	11,887	168,487	70.55
Dist. of Col.	10,783	1,757	3,567	16,107	195,563	82.36
	$2,305,759	$1,064,225	$ 269,915	$3,639,899	58,589,863	$62.12

Source: Publications of the Bureau of Public Roads.

Table 54

DISTRIBUTION OF STATE HIGHWAY USER RECEIPTS

All States, 1954

State	Collection and Administration Costs	State Highway Purposes	Local Roads and Streets	Non-Highway Purposes	Total
	(000)	(000)	(000)	(000)	(000)
Alabama	$ 1,637	$ 19,436	$ 32,659	$	$ 53,732
Arizona	1,320	17,030	4,762	....	23,112
Arkansas	423	32,369	6,760	1,505	41,057
California	19,128	261,059	92,029	66,720	438,936
Colorado	2,737	23,366	11,889	68	38,060
Connecticut	2,830	29,584	6,537	367	39,318
Delaware	490	6,727	14	2,206	9,437
Florida	3,434	66,168	13,854	29,642	113,098
Georgia	1,057	35,103	20,028	9,150	65,338
Idaho	435	11,950	5,279	....	17,664
Illinois	8,167	99,488	78,691	1,425	187,771
Indiana	4,039	45,638	38,279	563	88,519
Iowa	2,078	37,493	39,751	....	79,322
Kansas	3,113	35,305	10,264	188	48,870
Kentucky	2,245	54,806	6,497	....	63,548
Louisiana	2,382	44,873	10,322	....	57,577
Maine	581	21,154	1,892	....	23,627
Maryland	1,880	35,881	24,823	....	62,584
Massachusetts	5,784	52,047	13,033	741	71,605
Michigan	5,936	66,604	76,741	....	149,281
Minnesota	2,287	58,632	14,518	210	75,647
Mississippi	1,714	22,693	20,246	....	44,653
Missouri	1,872	62,466	56	111	64,505
Montana	578	16,563	2,978	171	20,290
Nebraska	1,037	20,689	18,126	....	39,852
Nevada	276	7,088	567	....	7,931
New Hampshire	370	12,084	1,036	....	13,490
New Jersey	7,106	51,185	17,263	32,121	107,675
New Mexico	999	20,363	2,739	1,041	25,142
New York	10,024	144,366	40,075	39,140	233,605
North Carolina	3,352	96,056	5,422	2,927	107,757
North Dakota	448	10,223	4,722	....	15,393
Ohio	7,463	101,725	92,738	....	201,926
Oklahoma	1,551	37,226	25,329	9,267	73,373
Oregon	3,121	35,043	15,450	657	54,271
Pennsylvania	6,222	166,476	31,456	....	204,154
Rhode Island	643	6,622	692	6,279	14,236
South Carolina	1,130	39,896	5,579	1,161	47,766
South Dakota	400	14 023	5,544	....	19,967
Tennessee	1,377	34 225	30,264	11,367	77,233
Texas	7,912	136 128	29,004	30,283	203,327
Utah	547	13,401	2,359	....	16,307
Vermont	267	6 308	4,294	....	10,869
Virginia	1,525	71,504	2,530	309	75,868
Washington	3,088	40 612	22,505	14,078	80,283
West Virginia	1,030	36,321	....	....	37,351
Wisconsin	3,634	37,998	27,483	5,364	74,479
Wyoming	451	7,851	3,474	....	11,776
Dist. of Col.	615	....	13,999	2,391	17,005
Total	$ 140,735	$2 303 848	$ 934,552	$ 269,452	$3,648,587

Source: Publications of the Bureau of Public Roads.

Table 55

EXISTING RURAL AND URBAN MILEAGE IN ALL STATES, 1954

State	Under State Control	Under Local Control	Under Federal Control	Total	Under State Control	Under Local Control	Total	Total All Mileage
Alabama	11,243	50,123	....	61,366	875	6,309	7,184	68,550
Arizona	3,874	16,459	8,237	28,570	104	1,742	1,846	30,416
Arkansas	9,494	60,771	1,733	71,998	591	4,336	4,927	76,925
California	12,537	81,372	18,342	112,251	1,230	23,275	24,505	136,756
Colorado	7,616	61,961	1,178	70,755	342	4,334	4,676	75,431
Connecticut	2,632	7,978	....	10,610	585	4,294	4,879	15,489
Delaware	3,783	....	....	3,783	165	440	605	4,388
Florida	10,999	31,259	1,126	43,384	1,299	11,522	12,821	56,205
Georgia	13,526	69,035	32	82,593	1,608	10,478	12,086	94,679
Idaho	4,534	26,993	7,968	39,495	212	2,061	2,273	41,768
Illinois	10,464	93,391	....	103,855	1,823	17,289	19,112	122,967
Indiana	9,753	76,093	....	85,846	904	11,257	12,161	98,007
Iowa	8,780	92,200	....	100,980	1,050	10,138	11,188	112,168
Kansas	9,469	115,950	12	125,431	520	7,761	8,281	133,712
Kentucky	16,905	42,557	267	59,729	716	2,685	3,401	63,130
Louisiana	14,056	25,984	....	40,040	980	5,750	6,730	46,770
Maine	10,725	8,129	89	18,943	474	1,164	1,638	20,581
Maryland	4,559	12,577	19	17,155	244	2,515	2,759	19,914
Massachusetts	1,780	14,029	....	15,809	510	8,423	8,933	24,742
Michigan	8,317	85,065	....	93,382	1,038	13,313	14,351	107,733
Minnesota	11,565	97,343	1,427	110,335	1,512	10,879	12,391	122,726
Mississippi	7,443	53,036	1,029	61,508	550	3,555	4,105	65,613
Missouri	21,446	76,706	614	98,766	1,059	10,471	11,530	110,296
Montana	9,197	54,820	6,819	70,836	211	1,343	1,554	72,390
Nebraska	9,490	89,303	259	99,052	414	5,086	5,500	104,552
Nevada	5,859	24,978	....	30,837	76	560	636	31,473
New Hampshire	3,660	8,596	130	12,386	286	1,003	1,289	13,675
New Jersey	1,972	15,324	....	17,296	551	11,160	11,711	29,007
New Mexico	10,854	45,587	4,162	60,603	439	1,523	1,962	62,565
New York	12,994	73,132	19	86,145	892	16,800	17,692	103,837
North Carolina	66,441	....	1,277	67,718	2,514	6,188	8,702	76,420
North Dakota	6,377	108,900	484	115,761	247	2,096	2,343	118,104
Ohio	16,002	66,160	....	82,162	2,415	13,928	16,343	98,505
Oklahoma	9,995	81,746	344	92,085	525	6,768	7,293	99,378
Oregon	7,698	31,760	16,932	56,390	393	4,422	4,815	61,205
Pennsylvania	41,834	45,828	308	87,970	3,041	14,551	17,592	105,562
Rhode Island	672	1,098	....	1,770	268	2,080	2,348	4,118
South Carolina	22,121	26,096	....	48,217	2,238	2,500	4,738	52,955
South Dakota	6,533	81,751	1,115	89,399	223	2,084	2,307	91,706
Tennessee	7,880	56,462	683	65,025	673	4,367	5,040	70,065
Texas	44,976	151,856	....	196,832	2,568	26,870	29,438	226,270
Utah	4,805	17,008	5,867	27,680	592	3,069	3,661	31,341
Vermont	1,858	11,092	23	12,973	165	656	821	13,794
Virginia	47,939	520	1,094	49,553	1,307	3,967	5,274	54,827
Washington	6,059	39,455	6,977	52,491	460	6,160	6,620	59,111
West Virginia	31,134	1,677	514	33,325	575	2,400	2,975	36,300
Wisconsin	10,107	76,134	406	86,647	1,286	8,356	9,642	96,289
Wyoming	4,835	23,062	2,177	30,074	121	751	872	30,946
				....	....	1,200	1,200	1,200
TOTAL	606,792	2,331,356	91,663	3,029,811	40,871	323,879	364,750	3,394,561

Source: Publications of the Bureau of Public Roads.

Table 56

Annual Travel (1954) on the Interstate System by Vehicle Type Registered G.V.W. and Volume Class

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000)
Passenger Cars			
Under 5000	215690	1 - 1	442388
Commercial Trucks			
Under 5000*	21088	1 - 1	23348
5001 - 6000	5404	1 - 1	6464
6001 - 8000	2776	1 - 1	15079
8001 - 10000	1718	1 - 1	10866
10001 - 12000	1138	1 - 1	4234
12001 - 14000	1285	1 - 1	2804
14001 - 16000	1723	1 - 1	3637
16001 - 18000	1766	1 - 1	5264
18001 - 20000	1535	1 - 1	6637
20001 - 22000	1415	1 - 1	4179
	42	1 - 2	232
22001 - 24000	1235	1 - 1	1548
	13	1 - 2	78
24001 - 26000	654	1 - 1	1162
	20	1 - 2	115
26001 - 28000	429	1 - 1	1872
	28	1 - 2	148
28001 - 30000	138	1 - 1	905
	24	1 - 2	117
30001 - 32000	75	1 - 1	451
	68	1 - 2	298
32001 - 34000	118	1 - 2	458
34001 - 36000	176	1 - 2	625
36001 - 38000	125	1 - 2	413
38001 - 40000	168	1 - 2	660
40001 - 42000	699	1 - 2	6266
Sub-total	43860		97860
*Estimate from Manufacturer's Rated Capacity of Registered Vehicles			
Farm Trucks			
Under 5000*	9828	1 - 1	8058
5001 - 6000	5973	1 - 1	4898
6001 - 8000	8072	1 - 1	5231
8001 - 10000	4987	1 - 1	2325
10001 - 12000	2316	1 - 1	721
12001 - 14000	2256	1 - 1	966
14001 - 16000	2599	1 - 1	1580
16001 - 18000	3674	1 - 1	2460
18001 - 20000	4773	1 - 1	1579
20001 - 22000	4375	1 - 1	2388
22001 - 24000	2608	1 - 1	2181
24001 - 26000	833	1 - 1	934
26001 - 28000	328	1 - 1	464
28001 - 30000	95	1 - 1	162
30001 - 32000	22	1 - 1	44
Sub-total	52739		33991
*Estimate from Manufacturer's Rated Capacity of Registered Vehicles			
Tractor Trucks			
12001 - 14000	90*	1 - 1	102
14001 - 16000	36	1 - 1	231
16001 - 18000	49	1 - 1	574
18001 - 20000	74	1 - 1	1270
20001 - 22000	83	1 - 1	1863
22001 - 24000	64	1 - 1	1782
24001 - 26000	63	1 - 1	2038
26001 - 28000	78	1 - 1	2356
28001 - 30000	5	1 - 1	138
30001 - 32000	9	1 - 1	227
32001 - 34000	6	1 - 2	192
34001 - 36000	121	1 - 2	4424
36001 - 38000	22	1 - 2	330
38001 - 40000	40	1 - 2	1059
40001 - 42000	144	1 - 2	3055
Sub-total	884		19641
* 55 Tractor Trucks are registered at less than 12000# - not a typical operation.			

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000)
Buses			
Under 5000	104	1 - 1	138
5001 - 6000	27	1 - 1	36
6001 - 8000	111	1 - 1	166
8001 - 10000	117	1 - 1	196
10001 - 12000	108	1 - 1	198
12001 - 14000	103	1 - 1	207
14001 - 16000	66	1 - 1	143
16001 - 18000	113	1 - 1	265
18001 - 20000	103	1 - 1	263
20001 - 22000	31	1 - 1	87
22001 - 24000	25	1 - 1	102
24001 - 26000	178	1 - 1	1347
26001 - 28000	49	1 - 1	648
28001 - 30000	1	1 - 1	18
30001 - 32000	2	1 - 1 City Buses	0
32001 - 34000	2	1 - 1 " "	0
34001 - 36000	8	1 - 1 " "	0
36001 - 38000	8	1 - 1	332
Sub-total	1156		4146
Total**			598026
**Mileage usually reported. Combinations as single vehicles.			
Semi-Trailers			
8001 - 10000	62	0 - 1	98
10001 - 12000	35	0 - 1	88
12001 - 14000	171	0 - 1	597
14001 - 16000	196	0 - 1	869
16001 - 18000	891	0 - 1	4784
22001 - 24000	48	0 - 2	53
24001 - 26000	37	0 - 2	136
26001 - 28000	54	0 - 2	336
28001 - 30000	174	0 - 2	1527
30001 - 32000	984	0 - 2	11153
Sub-total	2652		19641
Full Trailers			
Under 3000	11449*	1	1205
3001 - 4000	2493*	1	262
4001 - 6000	1796*	2	378
	1215*	1	312
6001 - 8000	292	1	891
8001 - 10000	144	1	368
10001 - 12000	136	1	311
28001 - 30000	19	1 - 1	132
30001 - 32000	79	1 - 1	699
32001 - 34000	40	1 - 1	432
34001 - 36000	327	1 - 1	4147
	21	1 - 2	265
36001 - 38000	199	1 - 2	2524
38001 - 40000	12	1 - 2	152
40001 - 42000	64	1 - 2	812
Sub-total	18286		12890
*Mileage Estimated			
Total	335267 1/		630557

1/ See footnote to following table for agreement with 1954 Statistical Report.

Table 57

Annual Travel (1954) on the Interstate System by Vehicle Type Registered G.V.W. and Volume Class

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 1000 VPD	Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
			BUSES				
Under 5000	104	1 - 1	59	186	266	267	268
5001 - 6000	27	1 - 1	15	48	67	68	69
6001 - 8000	111	1 - 1	72	217	301	307	308
8001 - 10000	117	1 - 1	85	246	331	344	346
10001 - 12000	108	1 - 1	88	245	322	339	341
12001 - 14000	103	1 - 1	92	250	321	343	345
14001 - 16000	66	1 - 1	65	170	217	234	235
16001 - 18000	113	1 - 1	120	309	384	420	422
18001 - 20000	103	1 - 1	120	296	367	417	420
20001 - 22000	31	1 - 1	40	94	129	157	158
22001 - 24000	25	1 - 1	50	93	137	177	178
24001 - 26000	178	1 - 1	663	1114	1603	1813	1821
26001 - 28000	49	1 - 1	309	615	830	831	834
28001 - 30000	1	1 - 1	9	19	23	24	25
30001 - 32000	2	1 - 1 City Buses	0	0	0	0	0
32001 - 34000	2	1 - 1 " "	0	0	0	0	0
34001 - 36000	8	1 - 1 " "	0	0	0	0	0
36001 - 38000	8	1 - 2	155	355	399	400	409
Sub-total	1156		1942	4257	5697	6141	6179
Total **			276318	642591	860956	891545	898196

** Mileage usually reported. Combinations as single vehicles.

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 1000 VPD	Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
			SEMI-TRAILERS (Including Logging Trailers)				
8001 - 10000	62	0 - 1	51	69	85	92	93
10001 - 12000	35	0 - 1	44	77	93	100	101
12001 - 14000	171	0 - 1	285	575	695	744	753
14001 - 16000	196	0 - 1	410	872	1065	1137	1151
16001 - 18000	891	0 - 1	2247	4938	6059	6465	6543
22001 - 24000	48	0 - 2	17	111	190	199	201
24001 - 26000	37	0 - 2	59	172	246	260	263
26001 - 28000	54	0 - 2	153	374	496	527	533
28001 - 30000	174	0 - 2	710	1617	2051	2184	2210
30001 - 32000	984	0 - 2	5240	11463	14068	15013	15193
Sub-total	2652		9216	20268	25048	26721	27041
			FULL TRAILERS				
Under 3000	11449*	1	565	1243	1589	1637	1657
3001 - 4000	2493*	1	123	271	346	357	361
4001 - 6000	1796*	2	177	390	498	514	520
	1215*	1	144	317	399	412	417
6001 - 8000	292	1	418	919	1173	1211	1226
8001 - 10000	144	1	185	248	543	560	566
10001 - 12000	136	1	151	264	435	449	454
28001 - 30000	19	1 - 1	61	139	171	177	179
30001 - 32000	79	1 - 1	328	718	921	952	963
32001 - 34000	40	1 - 1	203	443	568	587	594
34001 - 36000	327	1 - 1	1945	4255	5460	5638	5706
	21	1 - 2	125	274	352	364	368
36001 - 38000	199	1 - 2	1183	2589	3323	3431	3472
38001 - 40000	12	1 - 2	71	155	201	208	210
40001 - 42000	64	1 - 2	381	833	1068	1103	1116
Sub-total	18286		6060	13058	17047	17600	17809
*Mileage Estimated							
Total	335267		291594	675917	903051	935866	943046
Subtract 1/	2097						
Add 2/	1154						
Total 3/	334324						

1/ Federal Vehicles
2/ Motorcycles
3/ 1954 Statistical Report

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 1000 VPD	Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
			PASSENGER CARS				
Under 5000	215690	1 - 1	205055	472069	618744	637849	641918
			COMMERCIAL TRUCKS				
Under 5000	21088	1 - 1	10840	24276	35256	37037	37440
5001 - 6000	5404 *	1 - 1	3001	6722	9763	10256	10367
6001 - 8000	2776	1 - 1	6666	18288	26874	28022	28285
8001 - 10000	1718	1 - 1	4917	12382	17548	18085	18216
10001 - 12000	1138	1 - 1	1797	5842	7771	8048	8112
12001 - 14000	1285	1 - 1	1226	3561	4890	5104	5152
14001 - 16000	1723	1 - 1	1700	3742	5043	5171	5204
16001 - 18000	1766	1 - 1	2556	4649	6318	6439	6473
18001 - 20000	1535	1 - 1	3131	6648	8684	8913	8971
20001 - 22000	1415	1 - 1	1676	6482	9136	9485	9566
	42	1 - 2	106	259	314	321	322
22001 - 24000	1235	1 - 1	650	2114	3383	3479	3503
	13	1 - 2	36	75	91	92	93
24001 - 26000	654	1 - 1	473	1661	2940	3111	3148
	20	1 - 2	55	106	132	135	136
26001 - 28000	429	1 - 1	889	1810	2736	2839	2864
	28	1 - 2	71	142	177	181	182
28001 - 30000	138	1 - 1	445	772	958	976	982
	24	1 - 2	55	116	145	149	150
30001 - 32000	75	1 - 1	222	382	462	472	475
	68	1 - 2	139	316	395	404	406
32001 - 34000	118	1 - 2	210	518	663	682	686
34001 - 36000	176	1 - 2	278	714	914	941	948
36001 - 38000	125	1 - 2	185	490	632	652	657
38001 - 40000	168	1 - 2	287	844	1160	1201	1211
40001 - 42000	699	1 - 2	2897	6762	8749	8955	9008
Sub-total	43860		44508	109673	155134	161150	162557

* Estimate from manufacturer's rated capacity of registered vehicles

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 1000 VPD	Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
			FARM TRUCKS				
Under 5000	9828	1 - 1	3732	8414	12575	12998	13249
5001 - 6000	5973 *	1 - 1	2268	5112	7642	7899	8051
6001 - 8000	8072	1 - 1	2457	5125	8089	8605	8693
8001 - 10000	4987	1 - 1	1095	2241	3616	3896	3945
10001 - 12000	2316	1 - 1	334	718	1291	1418	1441
12001 - 14000	2256	1 - 1	425	1213	1611	1784	1815
14001 - 16000	2599	1 - 1	710	1823	2734	2924	2958
16001 - 18000	3674	1 - 1	1095	2774	5146	5621	5652
18001 - 20000	4773	1 - 1	704	1813	3082	3376	3427
20001 - 22000	4375	1 - 1	1071	2786	4021	4320	4372
22001 - 24000	2608	1 - 1	982	2495	3727	3978	4021
24001 - 26000	833	1 - 1	421	1062	1628	1684	1692
26001 - 28000	328	1 - 1	210	520	814	822	824
28001 - 30000	95	1 - 1	73	179	282	283	284
30001 - 32000	22	1 - 1	20	49	75	76	77
Sub-total	52739		15597	36324	56333	59684	60501

* Estimate from manufacturer's rated capacity of registered vehicles

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 1000 VPD	Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
			TRACTOR TRUCKS				
12001 - 14000	90 *	1 - 1	51	78	109	152	154
14001 - 16000	36	1 - 1	108	236	286	310	314
16001 - 18000	49	1 - 1	268	611	732	779	788
18001 - 20000	74	1 - 1	590	1363	1623	1692	1712
20001 - 22000	83	1 - 1	863	2029	2414	2513	2543
22001 - 24000	64	1 - 1	825	1949	2289	2382	2411
24001 - 26000	63	1 - 1	940	2259	2677	2698	2731
26001 - 28000	78	1 - 1	1096	2535	2950	3122	3160
28001 - 30000	5	1 - 1	65	140	161	166	168
30001 - 32000	9	1 - 1	108	216	240	252	255
32001 - 34000	6	1 - 2	90	201	225	255	258
34001 - 36000	121	1 - 2	2107	4346	5165	5664	5734
36001 - 38000	22	1 - 2	139	479	563	579	585
38001 - 40000	40	1 - 2	472	1265	1761	1792	1812
40001 - 42000	144	1 - 2	1494	2561	3853	4365	4416
Sub-total	884		9216	20268	25048	26721	27041

* 55 Tractor Trucks are registered at less than 12000# - not a typical operation.

Table 58

Annual Travel (1954) on the Interstate System by Vehicle Type Registered G.V.W. and Volume Class

Passenger Cars

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
Under 5000	215690	1 - 1	30407	69078	121795	201681

Commercial Trucks

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
Under 5000	21088	1 - 1	1557	4940	8294	12011
5001 - 6000	5404*	1 - 1	430	1265	2126	3077
6001 - 8000	2776	1 - 1	1352	2961	4149	7474
8001 - 10000	1718	1 - 1	867	2344	4009	5746
10001 - 12000	1138	1 - 1	464	1019	2059	3052
12001 - 14000	1285	1 - 1	266	649	1517	2182
14001 - 16000	1723	1 - 1	239	619	1265	1954
16001 - 18000	1766	1 - 1	239	708	1722	2487
18001 - 20000	1535	1 - 1	410	999	1940	2941
20001 - 22000	1415	1 - 1	545	1348	2152	3297
	42	1 - 2	12	39	66	101
22001 - 24000	1235	1 - 1	150	514	1069	1624
	13	1 - 2	3	13	23	33
24001 - 26000	654	1 - 1	137	426	634	1016
	20	1 - 2	4	18	33	50
26001 - 28000	429	1 - 1	111	368	551	851
	28	1 - 2	5	21	43	64
28001 - 30000	138	1 - 1	42	122	214	313
	24	1 - 2	4	16	34	50
30001 - 32000	75	1 - 1	21	53	104	161
	68	1 - 2	13	35	85	127
32001 - 34000	118	1 - 2	22	55	133	214
34001 - 36000	176	1 - 2	33	75	175	261
36001 - 38000	125	1 - 2	22	55	133	214
38001 - 40000	168	1 - 2	40	127	198	235
40001 - 42000	699	1 - 2	282	837	912	978
Sub-total	43860		7270	19632	33642	50474

*Estimate from manufacturer's rated capacity of registered vehicles.

Farm Trucks

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
Under 5000	9828	1 - 1	993	2854	6076	14220
5001 - 6000	5973 *	1 - 1	603	1735	3693	8643
6001 - 8000	8072	1 - 1	754	1991	4192	8370
8001 - 10000	4987	1 - 1	349	952	2097	3608
10001 - 12000	2316	1 - 1	126	360	813	1341
12001 - 14000	2256	1 - 1	176	503	1071	1741
14001 - 16000	2599	1 - 1	283	786	1556	2946
16001 - 18000	3674	1 - 1	543	1404	2999	5538
18001 - 20000	4773	1 - 1	705	1994	4320	8920
20001 - 22000	4375	1 - 1	460	2018	4761	9759
22001 - 24000	2608	1 - 1	304	1307	3341	6792
24001 - 26000	833	1 - 1	163	481	1219	2471
26001 - 28000	328	1 - 1	90	214	543	1096
28001 - 30000	95	1 - 1	35	69	174	351
30001 - 32000	22	1 - 1	10	18	45	89
Sub-total	52739		5594	16636	36900	75885

* Estimate from manufacturer's rated capacity of registered vehicles.

Tractor Trucks

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
12001 - 14000	90 *	1 - 1	1	8	75	100
14001 - 16000	36	1 - 1	1	13	54	72
16001 - 18000	49	1 - 1	4	32	107	142
18001 - 20000	74	1 - 1	9	68	213	279
20001 - 22000	83	1 - 1	13	99	295	384
22001 - 24000	64	1 - 1	13	95	272	354
24001 - 26000	63	1 - 1	15	109	309	406
26001 - 28000	78	1 - 1	16	112	430	576
28001 - 30000	5	1 - 1	1	6	19	30
30001 - 32000	9	1 - 1	1	7	19	33
32001 - 34000	6	1 - 2	2	7	18	23
34001 - 36000	121	1 - 2	28	170	491	526
36001 - 38000	22	1 - 2	4	18	23	31
38001 - 40000	40	1 - 2	10	96	133	155
40001 - 42000	144	1 - 2	13	238	427	532
Sub-total	884		131	1078	2885	3643

*55 Tractor Trucks are registered at less than 12000# - not a typical operation

BUSES

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
Under 5000	104	1 - 1	9	62	136	289
5001 - 6000	27	1 - 1	2	16	36	76
6001 - 8000	111	1 - 1	10	73	160	339
8001 - 10000	117	1 - 1	11	83	182	387
10001 - 12000	108	1 - 1	11	83	181	384
12001 - 14000	103	1 - 1	12	85	186	395
14001 - 16000	66	1 - 1	8	59	128	271
16001 - 18001	113	1 - 1	15	107	230	490
18001 - 20000	103	1 - 1	3	8	15	15
20001 - 22000	31	1 - 1	1	3	5	5
22001 - 24000	25	1 - 1	1	3	6	6
24001 - 26000	178	1 - 1	11	40	68	68
26001 - 28000	49	1 - 1	6	18	32	32
28001 - 30000	1	1 - 1	0	1	1	1
30001 - 32000	2	1 - 1	0	0	0	0
32001 - 34000	2	1 - 1 City Buses	0	0	0	0
34001 - 36000	8	1 - 1 " "	0	0	0	0
36001 - 38000	8	1 - 2 " "	0	0	0	0
Sub-total	1156		100	641	1366	2758
Total**			43502	107115	196588	334441

**Mileage usually reported. Combinations as single vehicles.

SEMI-TRAILERS (including logging trailers)

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
8001 - 10000	62	1	1	5	12	18
10001 - 12000	35	1	1	5	12	18
12001 - 14000	171	1	5	35	82	128
14001 - 16000	196	1	9	52	122	190
16001 - 18000	891	1	48	292	680	1064
22001 - 24000	48	2	1	6	16	18
24001 - 26000	37	2	1	9	26	29
26001 - 28000	54	2	2	19	53	60
28001 - 30000	174	2	8	81	233	263
30001 - 32000	984	2	54	574	1649	1855
Sub-total	2652		131	1078	2885	3643

FULL TRAILERS

Registered GVW	No. Vehicles Registered	Axle Arrangement	Vehicle Miles (x 1000) Over 500 VPD	Over 200 VPD	Over 100 VPD	Total
Under 3000	11449 *	1	57	172	229	286
3001 - 4000	2493 *	1	12	37	50	62
4001 - 6000	1796 *	2	9	54	72	90
	1215 *	1	6	37	61	73
6001 - 8000	292	1	1	46	86	262
8001 - 10000	144	1	1	20	38	116
10001 - 12000	136	1	1	16	31	95
28001 - 30000	19	1 - 1	3	5	14	19
30001 - 32000	79	1 - 1	14	28	79	104
32001 - 34000	40	1 - 1	9	17	49	64
34001 - 36000	327	1 - 1	84	167	469	617
	21	1 - 2	0	6	42	42
36001 - 38000	199	1 - 2	0	0	0	0
38001 - 40000	12	1 - 2	0	0	0	0
40001 - 42000	64	1 - 2	0	0	0	0
Sub-total	18286		197	599	1220	1830
Total **			43830	108792	200693	339914

*Mileage Estimated

DESIGN STANDARDS FOR RURAL INTERSTATE SYSTEM ROUTES

			Multi-Lane			2-Lane		
Terrain Class			Flat	Rolling	Mountain	Flat	Rolling	Mountain
Design Speed — MPH			70	60	50	70	60	50
Operating Speed — MPH			50-55	45-50	40-45	50-55	45-50	40-45
Surface Type			Type I-High					
Lane Width — Feet			12					
Shoulder Width — Feet			10	8-10	① 4	10	8-10	① 4
Shoulder Type			Full Width-Bituminous Seal and Cover					
Maximum Curvature — Degree			3	5	7	3	5	7
Maximum Gradient — Percent			3	4	② 5	3	4	② 5
Stopping Sight Distance — Feet			700	525	400	700	525	400
③ Min. % Passing Sight Distance Available Per Mile		1500'	Not Applicable			10	10	–
		800'				–	–	10
④ Maximum 1976 DHV (Equivalent Passenger Vehicles)	Percent of Applicable Sight Distance Available	100%	1000 Per Lane	1200 Per Lane	1300 Per Lane	600	900	800
		80%				550	800	680
		60%				495	690	520
		40%				420	580	275
Minimum Median Width — Feet			⑤ 20		4	Not Applicable		
Minimum Right of Way Width — Ft.			200' Without Frontage Roads 300' With Frontage Roads			150' Without Frontage Roads 250' With Frontage Roads		
Control of Access			Required			⑥ Required 1956 DHV Exceeds 300 Partial Control of Access Permissable Where 1956 DHV is Less Than 300.		
⑦ Bridges	Loading		H 20 – S 16					
	Clearance Width — Feet		Bridges 100 Ft. or Less in Length – Full Approach Roadway Width (Including Usable Shoulders). Bridges Over 100 Ft in Length – Approach Pavement Width Plus 3 Foot Offset From Barrier Curbs.					
	Vertical Clearance — Feet		16					
⑧ Railroad Separations			All Railroad Crossings			All Main Line Crossings With 2 or More Tracks. All Single Track Main Line Crossings with 1956 DHV Over 200.		
Highway Separations			All Cross Roads and Places of Access			⑨		

① Wherever Feasible 8' Shoulders Should Be Provided in Mountainous Areas.

② Gradients in Rugged Terrain of 6 Percent, And in Unusual Conditions of 7 Percent, May Be Provided.

③ Passing Sight Distance in Mountainous and Heavy Rolling Topography Shall Be The Highest Obtainable With Reasonable Economy Capacity Analysis Will Determine Need For Truck Climbing Lanes.

④ Equivalent Passenger Car Capacities To Be Adjusted For Percent of Commercial Vehicles and Grades

⑤ Median Width of 40 Feet Desirable.

⑥ For Partial Control of Access, Intersections at Grade (Public Roads and Private Drives) Shall Not Exceed Two Per Side Per Mile, 1956 ADT Shall Not Exceed 50, and Access Rights Between Such Intersections Are Acquired.

⑦ Standards Apply to Interstate Highway Bridges, Overpasses, and Underpasses. Standards For Crossroad Overpasses and Underpasses Shall Be Those for the Crossroad.

⑧ Appropriate Protective Devices Shall Be Provided at all Railroad Grade Crossings

⑨ All Cross Roads and Places of Access Where Full Control of Access is Required All Intersections With 1956 ADT of 50 or More on Sections Where Partial Control of Access is To Be Provided.

TABLE -60

DESIGN STANDARDS FOR RURAL STATE HIGHWAYS
(OTHER THAN INTERSTATE SYSTEM ROUTES)

		Multi-Lane			2-Lane														
1976 ADT		①			① Over 2000			1000 to 2000			400 to 1000			200 to 400			Under 200		
Terrain Class		Flat	Rolling	Mtn	Flat	Rolling	Mtn	Flat	Rolling	Mtn	Flat	Rolling	Mtn	Flat	Rolling	Mtn	Flat	Rolling	Mtn
Design Speed — MPH		70	60	50	70	60	50	70	60	50	70	60	50	60	50	40	60	50	40
Operating Speed — MPH		50-55	45-50	40-45	50-55	45-50	40-45	45-50	45-50	40-45	45-50	45-50	40-45	45-50	40-45	35-40	45-50	40-45	35-40
Surface Type		Type 1-High									Type 2-Intermediate						Type 3-Low		
Lane Width — Feet		12																	
Shoulder Width — Feet		10	8-10	②4	10	8-10	②4	8	8	4	8	8	4	6	6	4	4	4	4
Shoulder Type		Bituminous Seal and Cover												Gravel					
Maximum Curvature — Degree		3	5	7	3	5	7	3	5	7	4	6	9	6	9	12	6	9	12
③ Maximum Gradient — Percent		3	4	6	3	4	6	3	4	6	4	5	7	5	6	7	5	7	7
③ Stopping Sight Distance — Ft		700	525	400	700	525	400	600	475	350	600	475	350	475	350	275	475	350	275
③ Min % Passing Sight Distance Available Per Mile	1500'	Not Applicable			10	10	-	10	10	-	Wherever Feasible								
	800'				-	-	10	-	-	10									
④ Maximum 1976 DHV (Equivalent Passenger Vehicles) — Percent of Applicable Sight Distance Available	100	1000 Per Lane	1200 Per Lane	1300 Per Lane	600	900	800	Not Applicable											
	80				550	800	680												
	60				495	690	520												
	40				420	580	275												
Min. Right of Way Width — Feet		⑤ 200' Without Frontage Rds 300' With Frontage Rds			150									100					
Bridges	Loading	H-20 — S-16															H-15 — S-12		
Bridges	Clearance Width — Feet	⑥			30									28					
Bridges	Vertical Clearance — Feet	16									14								
⑦ Railroad Separations		All Main Line Crossings			On Main Line Crossings With 6 or More Trains Per Day or Exposure Factor of 10,000 or More									Not Required					

① Multi-Lane Highway Required Where a Two-Lane Highway Will Not Provide Capacity for 1976 ADT

② Wherever Feasible 8' Shoulders Should Be Provided in Mountainous Areas on Highways Carrying Traffic in Excess of 2000 ADT

③ Gradient and Sight Distance Standards for Volumes of Over 2000 ADT in Mountainous or Heavy Rolling Topography Shall Be the Highest Obtainable with Reasonable Economy Capacity Analysis Will Determine Need For Truck Climbing Lane on Two-Lane Roads

④ Equivalent Passenger Car Capacities To Be Adjusted for Percent of Trucks and Grades

⑤ Partial Control of Access Required for All Multi-Lane Construction on New Location Minimum Median Width of 20 Feet in Flat and Rolling Terrain and 4 Feet in Mountainous Terrain Wider Median Widths Should Be Provided Wherever Feasible

⑥ Under 80 Feet in Length Full Approach Roadway Width Over 80 Feet in Length Approach Pavement Width Plus 3 Foot Offset from Barrier Curbs

⑦ Appropriate Protective Devices Shall Be Provided at All Railroad Grade Crossings Where Exposure Factor (Trains Per Day X ADT) 3000

TABLE -61

DESIGN STANDARDS FOR SECONDARY HIGHWAYS

1976 ADT		400 to 1000①			200 to 400			100 to 200			50 to 100			25 to 50			Under 25		
Terrain Class		Flat	Rolling	Mts	Flat	Rolling	Mts	Flat	Rolling	Mts	Flat	Rolling	Mts	Flat	Rolling	Mts	Flat	Rolling	Mts
Design Speed – MPH		60	50	45	50	45	40	45	40	35	40	30	25	40	30	25	40	30	25
Surface Type		Type 2 Intermediate Bituminous			Type 3 Low Bituminous			Type 3 Low Bituminous			Type 4 Gravel – Heavy Course			Type 4 Gravel – Medium Course			Type 4 Gravel – Light Course		
Surface Width – Feet		24	24	24	24	24	22	24	24	22	24	24	22	22	22	20	20	20	20
Roadway Width – Feet		32	32	28	30	30	26	28	28	26	24	24	22	22	22	20	20	20	20
Maximum Curvature – Degree		5	7	10	7	10	12	10	12	17	12	22	40	12	22	40	12	22	40
Maximum Gradient – Per Cent		5	6	7	5	6	7	5	6	7	5	7	9	5	7	9	5	7	10
Stopping Sight Distance – Feet		475	350	315	350	315	275	315	275	240	275	200	165	275	200	165	275	200	165
Maximum Right of Way Width-Ft.		120			100			100			66			66			66		
Bridges	Loading	H20–S16			H15–S12			H15			H15			H10			H10		
	Clear Width-Feet	28			26			26	26	24	24	24	22	22	22	20	20		
	Vertical Clearance-Ft.	14			14			14			14			14			14		
Railroad Crossing Protection		Grade Separation When Exposure Factor Exceeds 10,000 – Flashing Lights When Exposure Factor Exceeds 3,000 Reflectorized Warning Signs At All Other Crossings – (Exposure Factor = 1976 ADT X Trains per Day)																	

① Use Design Standards for Rural State Highways When 1976 ADT Exceeds 1000

② In Built-up Suburban Areas Use Municipal Street Standards

TABLE ·62

NEW CONSTRUCTION STANDARDS FOR ARTERIAL STREETS

Design Features	All Cities			Cities Over 5000 Population			Cities Under 5000 Population		
	① Controlled Access			Arterials			Arterials		
				Downtown Area	Intermediate Area	Outlying Area	Downtown Area	Intermediate Area	Outlying Area
1976 Design Hour Traffic Volume Total For Number of Lanes Shown	7200 to 9000	Up to 6000	② State Highway By-Passes Only Under 750	See Below					
Surface Type	High			High	③ High or Intermediate		High	③ High, Intermediate or Low	
④ Number of Lanes	6	4	2	⑤ Controlled By Anticipated 1976 Traffic Volumes and Operating Conditions. Determine Required Street Width By Consulting Hourly Capacity Tables					
Surface Width	72'	48'	24'						
Curbs and Sidewalks	Not Required – Pedestrians Not Permitted Pedestrian Crossings To Be Provided Where Needed			Yes	Yes	Only As Required	Yes	Yes	Only As Required
Shoulder Width	12'		10'	———		8'	———		8'
Median Width	Minimum 4' If Not Mountable. Otherwise 20'		——	20' Median Desirable Where Design Hour Traffic Volume Exceeds 750					
Parking	Not Permitted Except On Frontage Roads			For Streets Having A Design Hour Traffic Volume Exceeding 750, Parking Generally To Be Discouraged, With Parallel Parking Permitted Only During Off-Peak Hours. Parallel Parking Permitted For Lesser Traffic Volumes.					
Illumination	Continuous		Intersections	Continuous	At Intersections		Continuous	At Intersections	
Intersection Treatment, 10% or More of Traffic on Intersecting Street	Full Access Control		⑥	Progressive Traffic Signal System or Fixed Time Signal Where Warranted, Stop Sign Control For Lower Traffic Volumes					
Less Than 10% of Traffic on Intersecting Street			⑦	Traffic or Pedestrian Actuated Signals Where Warranted or Stop Sign Control					
Structure Width	⑧ Under 100' Long – Full Roadway Width Over 100' Long – Pavement Width Plus 3' Offset From Barrier Curbs			Pavement Plus Sidewalks					
Vertical Clearance	16'			14.5'					
Loading	H 20 – S 16			⑨ For Heavy Commercial Traffic H 20 – S 16 Other H 20					
Railroad Crossing Separation	At All Railroad Crossings			Main Line Crossings On Streets Carrying Heavy Traffic Volume Where Practical and Economically Feasible					
Railroad Grade Crossing Protection	———			Flashing Light Signals At All Crossings Without Watchman or Flagman and Where Average Daily Traffic X Number of Trains = 3000 or More					

① Standards for Controlled Access Arterials Based on 40 MPH Operating Speed Access Permitted Only At Interchanges and Intersections With Other Arterials. Access From Abutting Property By Frontage Streets Where Required.

② Applies Specifically To New Locations of 2-Lane State Highway Routes By-Passing Business Areas of Municipalities.

③ Character and Amount of Traffic Should Determine the Type of Surface Required

④ 12 Foot Traffic Lanes

⑤ Street Width Chosen Should Be Divisible Into Even Numbers of 11' or 12' Lanes, Except Where One-Way Operation Is Planned.

⑥ Grade Separations Where Warranted and Feasible, Otherwise Channelized and Signalized Intersections At Grade

⑦ Channelized and Signalized Intersections At Grade.

⑧ Includes Shoulders of Approaches

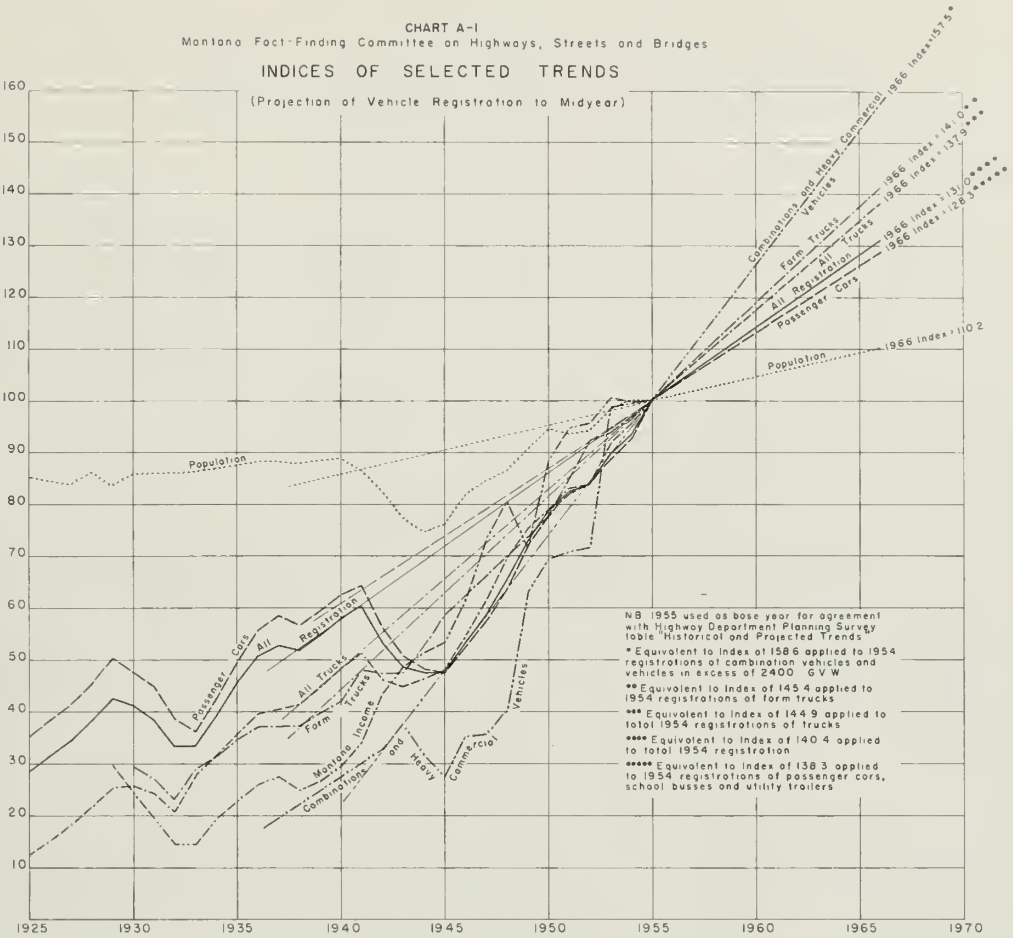
⑨ Heavy Commercial Traffic Includes Large Numbers of Tractor Trailers

CHART A-1

Montana Fact-Finding Committee on Highways, Streets and Bridges

INDICES OF SELECTED TRENDS

(Projection of Vehicle Registration to Midyear)



NB 1955 used as base year for agreement with Highway Department Planning Survey table "Historical and Projected Trends"

* Equivalent to Index of 158.6 applied to 1954 registrations of combination vehicles and vehicles in excess of 2400 G V W

** Equivalent to Index of 145.4 applied to 1954 registrations of farm trucks

*** Equivalent to Index of 144.9 applied to total 1954 registrations of trucks

**** Equivalent to Index of 140.4 applied to total 1954 registration

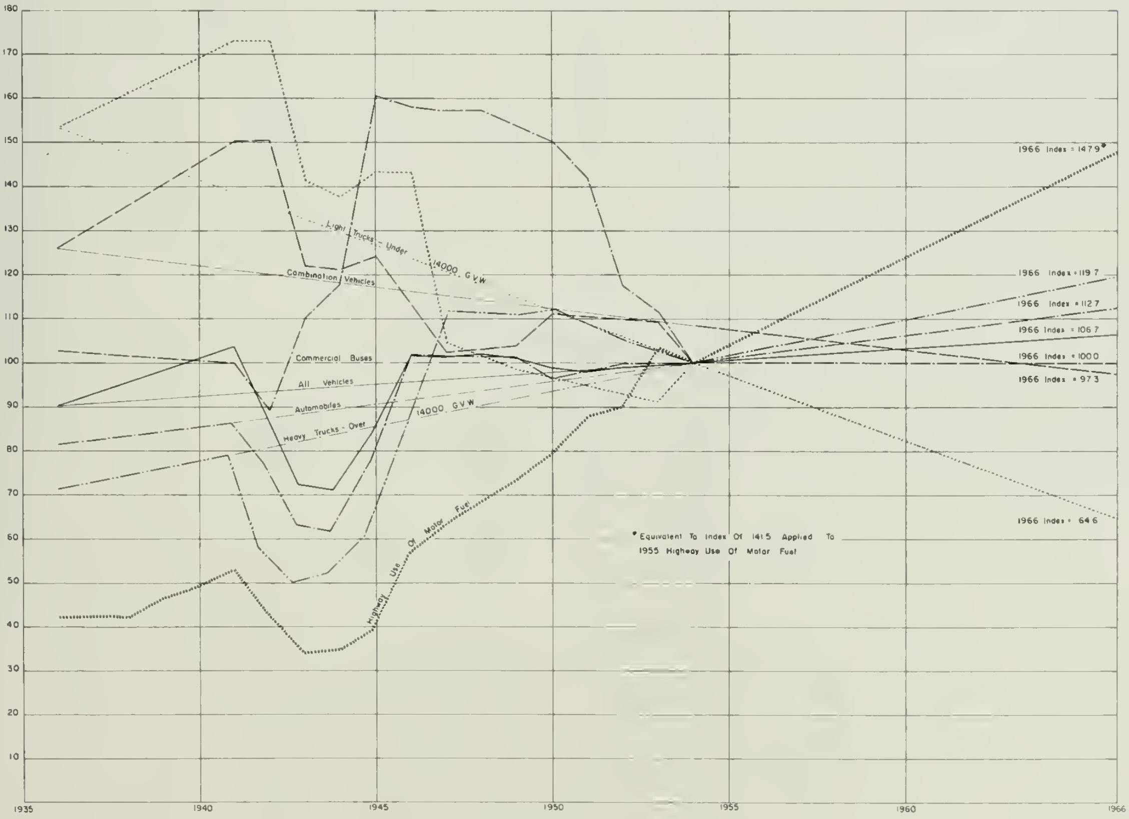
***** Equivalent to Index of 138.3 applied to 1954 registrations of passenger cars, school busses and utility trailers

CHART A-2

Montana Fact-Finding Committee on Highways, Streets and Bridges

INDICES OF SELECTED TRENDS

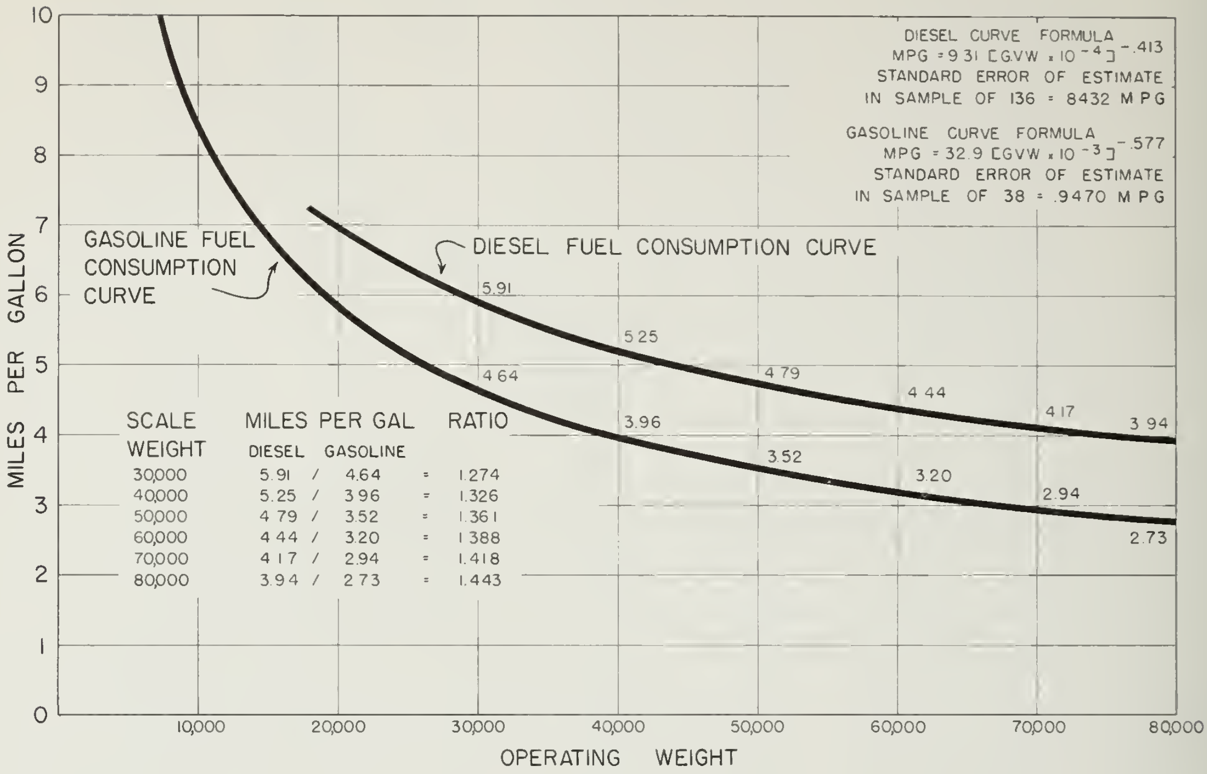
(Projection of Annual Mileage per Registered Vehicle to Midyear)



* Equivalent To Index Of 141.5 Applied To 1955 Highway Use Of Motor Fuel

CHART A-3

COMPARISON OF AVERAGE FUEL CONSUMPTION
GASOLINE VS DIESEL POWERED VEHICLES
STATE OF MONTANA 1956



DIESEL CURVE FORMULA
$MPG = 9.31 [GVW \times 10^{-4}]^{-.413}$
STANDARD ERROR OF ESTIMATE
IN SAMPLE OF 136 = .8432 M P G

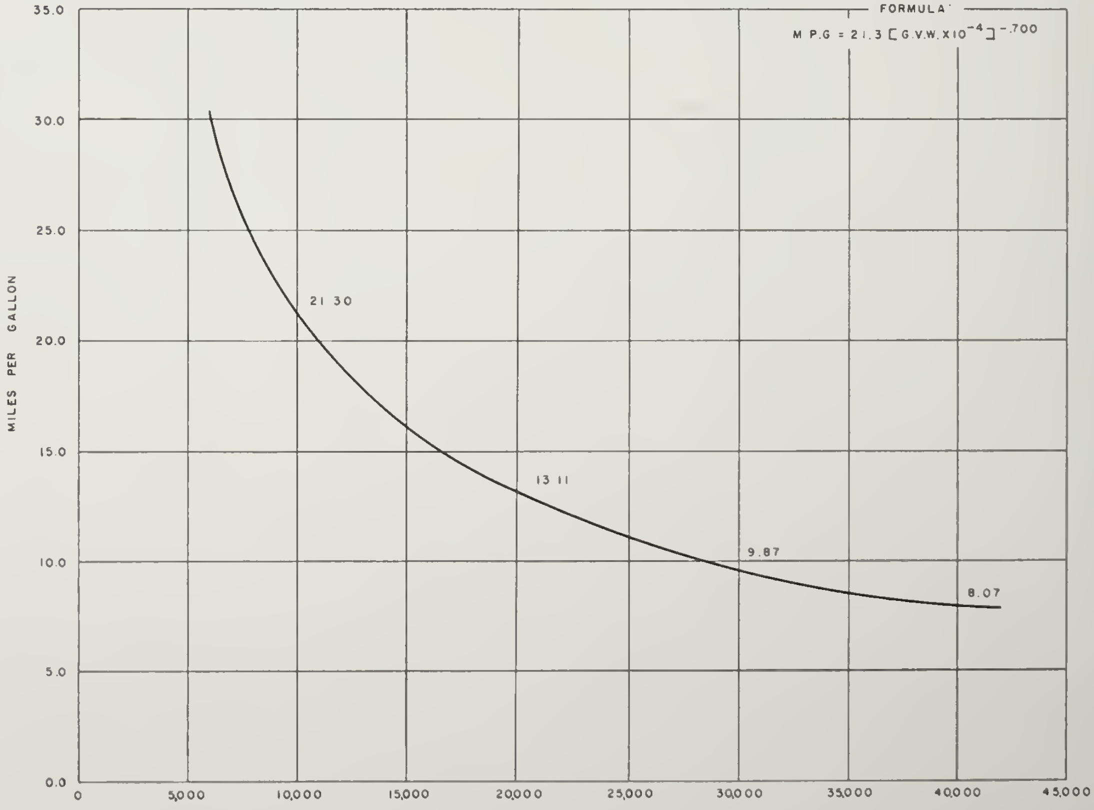
GASOLINE CURVE FORMULA
$MPG = 32.9 [GVW \times 10^{-3}]^{-.577}$
STANDARD ERROR OF ESTIMATE
IN SAMPLE OF 38 = .9470 M P G

SCALE WEIGHT	MILES PER GAL DIESEL		MILES PER GAL GASOLINE		RATIO
30,000	5.91	/	4.64	=	1.274
40,000	5.25	/	3.96	=	1.326
50,000	4.79	/	3.52	=	1.361
60,000	4.44	/	3.20	=	1.388
70,000	4.17	/	2.94	=	1.418
80,000	3.94	/	2.73	=	1.443

CHART A-4

COMPUTED FUEL CONSUMPTION ASSIGNED TO ALL TRAILERS

(FROM TYPICAL COMB.)



FORMULA
$M.P.G = 21.3 [G.V.W. \times 10^{-4}]^{-.700}$

CHART A-5

OPERATING G.V.W VS REGISTERED G.V.W

(ALL TRUCKS & BUSSES)

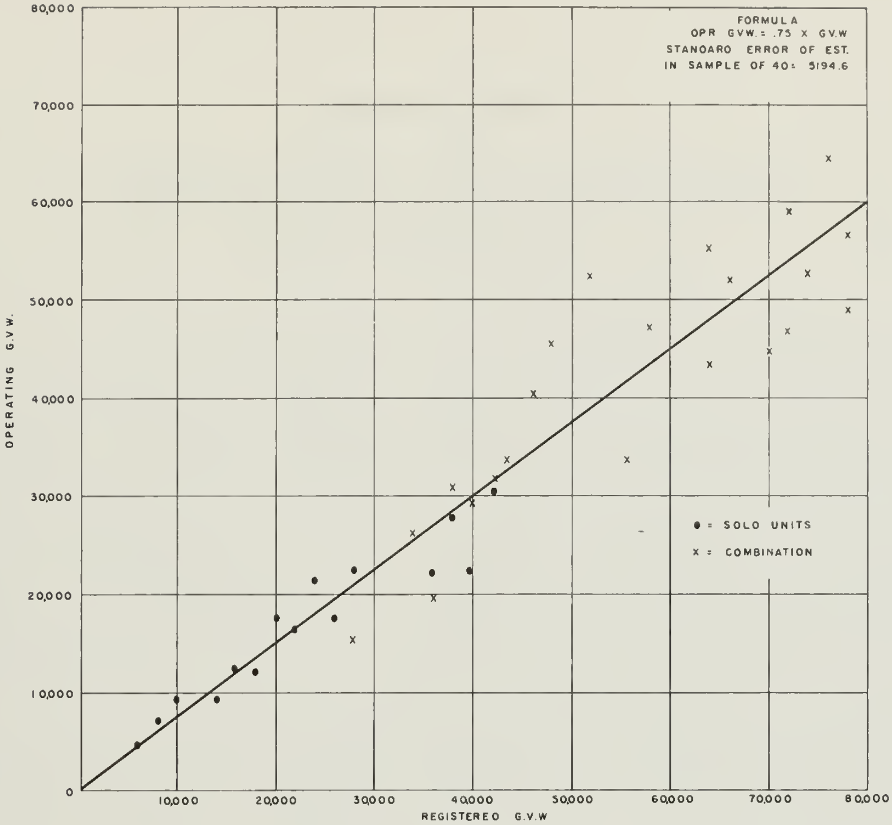


CHART A-6

OPERATING G.V.W. VS REGISTERED G.V.W.

(TRACTORS)

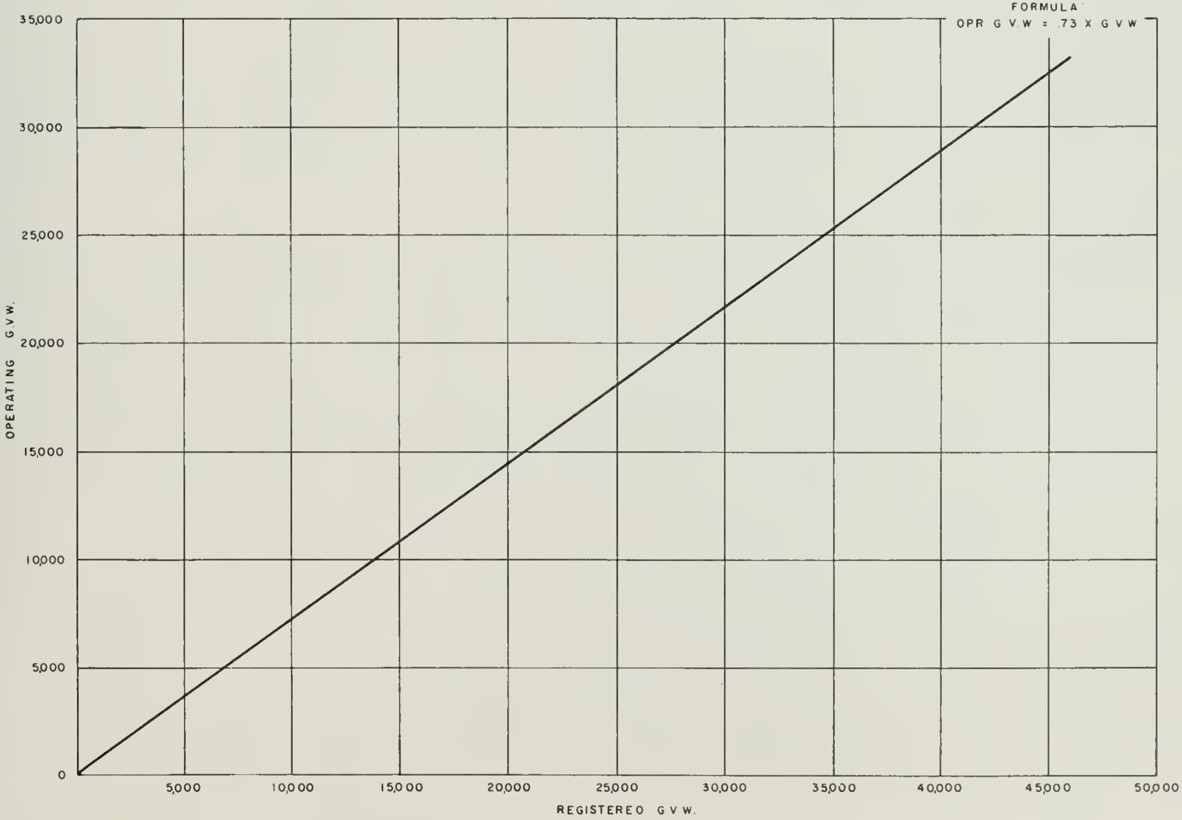
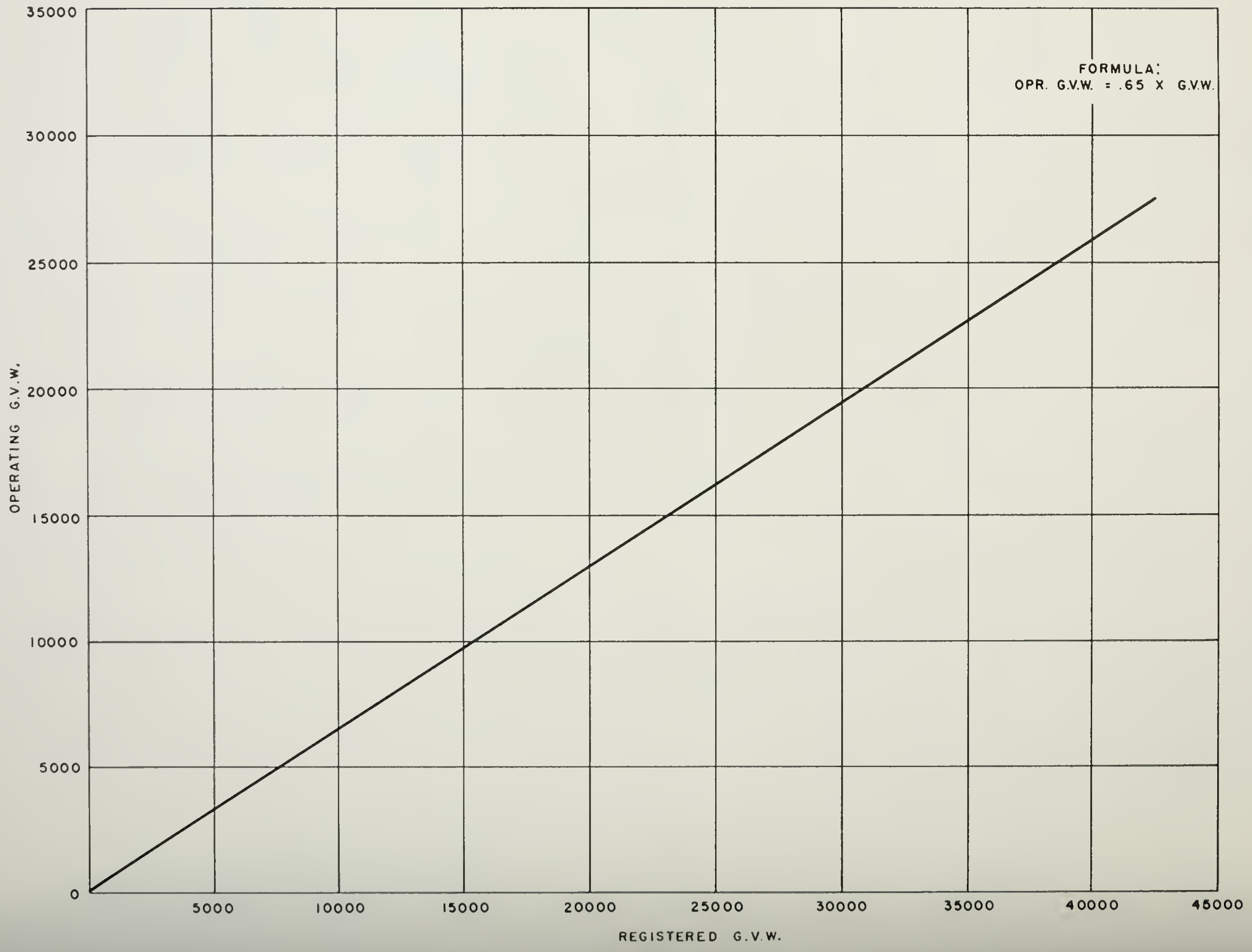


CHART A-7

OPERATING G.V.W. VS REGISTERED G.V.W.

(ALL TRAILERS)



FORMULA:
OPR. G.V.W. = .65 X G.V.W.

Appendix B

A MOTOR VEHICLE DEPARTMENT FOR MONTANA

In the course of inquiries connected with the Fact Finding Studies, it was necessary to contact a num- of offices in addition to the Highway Department and County and City Engineering organizations who build Montana highways. It might be said that these latter organizations are responsible for providing the traveled way for our motor vehicles. They are, or should be, interested only incidentally in the rolling stock using those highways, their interest being primarily that they make the highway facilities strong enough to support the loads that will be applied, and functional enough to handle the traffic volumes safely and efficiently.

The second component of highways, and the one involving several departments in the State, is the function of controlling the motor vehicle. This function might be considered to deal with all aspects concerning the vehicle as it rolls down the highway, including registration of vehicle and driver, financial responsibility of the operator, compliance with laws of safety and legal movement, general operational control, taxation, accident facts and statistical data on motor vehicle ownership and use. The various functions are now scattered among many State departments as shown in summary form by tables B-1 and B-2. The general operational data of these agencies, including cost of operation, annual revenue development, space occupancy, personnel, and other information, is shown in summary form on table B-3.

All of the various offices mentioned in table B-3 have been reviewed in greater or less degree during studies of the Fact Finding Committee. Each office appears to be doing a good job within budgetary limits but there is some overlapping of activities and some functions are missed entirely or covered only partially, due to divided control. Particular notice was taken of the Board of Equalization activities as they pertain to fuel tax collections and refunds. Special attention was considered desirable because of the large segment of highway revenue that this department develops in an annual period. The operations of fuel tax collections and refunds were reviewed in April of 1956 and comments pertain to conditions observed at that time.

Fuel Tax Refunds

In reviewing the fuel tax refund section of the Board of Equalization, it was obvious that considerable attention has been given to the improvement of this function.

In order to qualify for refund, each claimant must obtain a permit at a fee of $1.00. The permit is good for a 5-year period. This is generally conceded to be too long a permit period for efficient control. The permit is issued on the basis of an application form. A check of applicant forms indicates that the permit is issued without too much concern as to whether questions on the form are completely answered. This leads to the conclusion that the applicant form contains unnecessary questions, or if the questions are necessary in administration of the law, the form should be more carefully checked before issuance of the permit.

A person desiring to make refund claim must purchase from a business firm qualified by the Board of Equalization to sell refundable fuel. Such firms are required to use approved invoices for refundable sales. These invoices are not standard for all firms, but they are required to provide for standarized information.

The refund claimant is required to submit his purchase invoice for all refundable fuel as well as sales slips for all direct purchases of gasoline for highway use. This latter requirement is enforced if sufficient quantities of fuel used on highways have not been deducted from bulk purchases at the time of refund claim. These are all desirable controls for refund procedures and have undoubtedly had favorable effects.

It is interesting to note that in review by the auditors, this department has attempted to arrive at fuel consumption for highway vehicles which might be considered reasonable. This reportedly has been done by observation of claims submitted. After a review of what officials have considered a representative sample of these claims, the department has determined that each highway vehicle can logically be expected to use 22 gallons per month on the highway. This is 264 gallons per year. The staff of the Fact Finding Committee was advised that any claim that accounted for 22 gallons per month average highway use of fuel was thereby considered valid. This is substantially below the 680 gallons per vehicle annually accounted for in statewide consumption averages for Montana. A figure similar to 680 gallons per year per vehicle was confirmed incidental to other data in the recent motor vehicle use studies conducted in Montana by the Highway Planning Survey in cooperation with the U. S. Bureau of Public Roads. In this study, with fairly close statistical controls, no substantial difference was observed between actual highway use of farm owned vehicles and non farm owned vehicles. It is believed that the 680 gallon per year figure must be considered a more valid observation than the 264 gallon allowance developed from a sample in the refund claims office. A statistical appraisal would develop a number of inherent biases in the department sample which would affect the 264 gallon allowance. The effect would be adverse from the standpoint of the State in its attempt to account for the maximum highway use of motor fuel.

The opinion is often expressed that agricultural refunds should be controlled in some degree by the number of acres being farmed and by the type of crop. The Board of Equalization has not developed firm figures for this type of control. While such figures could never be the final word, their use as a guide would be most helpful.

In 1955 this department handled 31,511 refund claims. In the process of office checking, 4,916 of these were returned for correction or revision. In the final analysis, 680 claims were disallowed completely and there were many disallowances within the remaining 30,831 paid claims because of outdated invoices and other technicalities. Also in 1955, there were 491 field audits requested and about 1/3 of these resulted in a field check. The remaining 2/3 were eventually handled without a field check because of shortage of field personnel. The average claim was for $115.21 in 1955. During this same year, a total of $44,061.61 in claims was disallowed.

Fuel Tax Collections

The difficulties of this department are reflected almost immediately in its operating budget. At the time of review by the Fact Finding Committee, total personnel salaries amounted to about $1,800 per month. Other costs, including cars, per diem, etc., probably brought the total cost to about $3,000 per month. This would be $36,000 per year for a division that accounted for the following tax revenue in 1955.

Special Fuels	$ 1,426,072
Gasoline	18,557,129
Coal	53,625
Oil	692,091
Cement	61,103
Vermiculite	6,810
Aviation Licenses	480
	$20,797,310

Table B-1

ENFORCEMENT RESPONSIBILITY AND OPERATIONAL DATA ON VARIOUS MONTANA AGENCES ENGAGED IN MOTOR VEHICLE CONTROL

Duty or Operational Function	Size & Weight Dept. Maint. Div.	GVW Tax Div.	Highway Patrol	Railroad Commission	Board of Equal.	Reg. of Motor Vehicles	Reciprocity Board	County Treasurers
Weight Control on Highways	X							
Administering GVW Tax Laws		X	X					X
Administration and Enforcement of M. V. Reg. and Title Laws			X			X		X
Drivers License			X					X
M. V. Inspection			X					
Gas Tax Enforcement					X			
Use Fuel Tax Enforcement					X			
Permits for Commercial Use of Highways				X				
Financial Responsibility			X					
Proration Law		X						

Table B-2

RESPONSIBILITY FOR COLLECTING MOTOR VEHICLE FEES IN MONTANA

Collecting Agencies

TAXES & FEES	**Highway Dept.**	**GVW Tax Div.**	**Highway Patrol**	**Railroad Commission**	**Board of Equal.**	**Reg. of Motor Vehicles**	**County Treasurers**
Gasoline-Diesel-Aviation Tax					X		
Gas Refund					X		
Importers Tax		X			X		
Gross Weight Fees	X						X
Annual License Fees							X
Temporary Permit Fees	X		X			X	X
Drivers License							X
Duplicate Drivers License			X				
Operators Searches			X				
Violation Fees			X				
Weight Change Fees			X				X
New Car Tax							X
Tariff Filing Fees				X			
Time Schedule Fees				X			
Annual Report Fees				X			
Gross Revenue Fees				X			
Permit Excess Weight Fees	X						
Dealers License Fees						X	
Caravan Fees						X	
Title Fees						X	X
Duplicate License Fees						X	X
Duplicate Registration Fees						X	X
Proration Sticker Fees						X	

Table B-3

REVENUE, OPERATION COSTS, PERSONNEL AND EQUIPMENT OF MONTANA AGENCIES ENGAGED IN MOTOR VEHICLE CONTROL FUNCTIONS

	Highway		Other State Agencies					
	Maint. Div. Weight Control	**GVW Tax Division**	**Highway Patrol**	**Railroad Commission**	**Board of Equal.**	**Reg. of Motor Vehicles**	**Reci-procity Board**	**Total**
Number of Personnel	40	7 Offices 6 Ports of Entry	136	14	16	86		305
Salary Range	$273-$793	$225-$410	$150-$500	$200-$625	$190-$450	$160-$450		
Floor Space	1898 Sq. Ft.	445 Sq. Ft	4,800 Sq. Ft.	3,700 Sq. Ft.	1,336 Sq. Ft.	10,972 Sq. Ft.		23,151 Sq. Ft.
Desks	11 Tables	7	22	15	13	44 Steel		112
Type-writers	None	1	14	11	8	63		97
Business Machines	None	2	5	3	9	5		24
Auto-mobiles	None	1	97	1		4		103
Annual Revenue	$135,000	$2,500,000	$815,000	$300,000	$18,000,000	$300,000		$22,050,000
Annual Operating Expense	$165,000	$ 28,994	$762,893	$105,052	$ 60,000	$247,871		$ 1,369,810

The division operates under laws as directed by the legislature but, on request, could not produce any written regulations or audit manual for use of personnel or information of the taxpayer.

At the time of this review there were 1,165 accounts using diesel fuel which, by law, are required to file monthly reports. A spot check indicated that as high as 40 percent of these accounts may not have been making monthly reports. There did not appear to be a consistent follow up of these requirements. It was estimated that there are about 200 audits of these use fuel accounts each year. This would mean an audit of each account about once every 6 years. No written records of any use fuel audits could be produced.

There are about 45 refineries and importers who report on gasoline sales each month to the Board of Equalization. Most of these firms are of substantial size. This fact has apparently led to the conclusion that there would be little desire on the companies' part to avoid the gasoline tax. This has led to a loose control and an almost non-existent audit program. There is indication that such audits may have been made in the past but none could be produced in audit form. This is surprising when the size of the tax bill of some of these companies is realized. Human error alone could account for substantial loss in obligations of these magnitudes.

Surety Bonds

The bonding of use fuel dealers and users and gasoline refineries and importers is required by State Law. There is indication that a close control of bonding procedures has not been followed. This was a factor in a substantial loss to the State, about $20,000, when the Modern Oil Company of Shelby went into bankruptcy in 1954. While this is an isolated case, adequate bonding could have protected the State in this instance and could do the same in similar instances in the future. The amount of bond required for gasoline dealers is discretionary with the Board of Equalization. Due to the large differences in the financial positions of the various gasoline dealers and the substantial bond that would be demanded in some instance, if bonds were related to monthly tax due, this, discretionary power is considered advisable.

In the case of diesel fuel taxation the law requires that the bond shall be in an amount of at least $500 and not less than two months obligation. A sample check indicated that about 5% of such fuel users may have been underbonded in terms of the law.

Fuel Tax Collection—Highway Contracts

In addition to its other functions, this understaffed department has been saddled with a tedious assignment, under request of the State Highway Department that all highway contractors on State road contracts be charged with fuel tax for fuel used off the highway. This provision in all State Highway contracts at the time of inquiry was Standard Special Provision No. 3. It is quoted below:

> "3. **Fuel Tax** Supplement to Article 7.18 of the Standard Specifications: It is understood and agreed that the unit prices bid by the contractor shall include the State tax or its equivalent on all gasoline, diesel fuel, use fuel, etc., used in the performance of any or all work performed under this contract, including that used in the operation of stationary gas engines, motorized equipment, and for all other uses whatsoever, as well as that used in motor vehicles; and it is further agreed that such tax shall be paid by the contractor or by his subcontractor or by his employees, either at the source of purchase or to the State Board of Equalization, and that if any refund of said tax is received by the contractor or by his subcontractors or employees, the amount thereof shall be credited to the State Highway Commission on accounts due to the contractor under this contract or shall be paid to the State Highway Commission by the contractor in cash or by certified check."

This provision, which contractors report adds 1 1/2 cents per yard to dirt excavation costs, was enforced for many years by the Board of Equalization. The Board reportedly was placed in an embarrassing position late in 1951 in connection with a contract which did not contain this provision and where the contractor refused to make payment. Because of this disagreement, the Gasoline Tax Division was apparently instructed by the Board to accept future money tendered, but to take no further part in attempting to collect the fuel tax allegedly due. This policy has been followed since that time and seems to occasion certain irregularities in the application of the provision to the several contractors.

Based on the procedures established, the engineer of each contract is instructed to report to the Board all fuel used by the contractor under his supervision. The contractor, in turn, makes the same report and is supposed to pay the fuel tax due. Actually, the files of the Board of Equalization are incomplete in project after project. A 10 percent sample of projects completed in 1954-55 was studied. In many cases, the contractor made no report. In some the engineer failed to report. In some cases, nobody made a report. The final product of the process usually involves the receipt of a letter by the Board of Equalization from the Highway Commission, asking if the fuel tax has been paid. This may be answered by a letter from the Board of Equalization, but is usually handled by telephone, and a note made that the Highway Department has been advised that fuel tax has been paid. In checking with the Highway Department accounts, it appears that no careful check is made of this matter, and it seems that it has reverted to a voluntary contribution in many instances.

While this policy theoretically means money to the highway fund which can be used to match Federal-Aid, any failure to collect the tax inflates the cost of the contract without equal reimbursement for the cost. Whether this contract provision is permissible under Federal rules is not known, but it seems inappropriate to inflate the cost of any contract. It is understood that some action toward removing this special provision from future contracts is under consideration.

General. It should perhaps be mentioned that visits to nearby states in connection with other studies of the Fact Finding Committee provided opportunity to discuss functions of fuel tax collection and refunds with officials of those states. It was observed that there is rather wide difference between the states in fuel tax collection procedures, particularly in auditing and checking activities. Admittedly, Montana's position as an exporting state requires more stringent enforcement techniques than many of the western states. In many respects the present procedures appear to be inadequate.

Registrar of Motor Vehicles

There are numerous complaints that this office is inefficient in service to the public. If this is true, it is probably the result of inadequate budget, lack of authority over its field agencies, the county treasurers, and poor coordination with other agencies engaged in motor vehicle control. It would seem logical, for example, that this agency should be responsible for administration of the Gross Vehicle Weight law since it is so closely allied to the registration function. Yet this administration is, instead, under the Highway Commission.

Comments in a letter from a business machine company that reviewed the processes of this department in 1951 are considered appropriate. "In accordance with your request, we would like to submit a resume of the advantages to be gained by the State of Montana and other interested associations and groups should an IBM Accounting Machine installation be installed in the office of the Registrar of Motor Vehicles.

"The Registrar of Motor Vehicles handles more paper work volume now than any other state agency in the State of Montana's IBM installations. Car registrations during the past five years have soared with the result that all systems are now taxed to the utmost in producing the required amount of output information. Several states have found it most economical and satisfactory to install IBM in order to speed the flow of information through their registration departments. The State of North Dakota is one of many which approximate the size of Montana. The basic principle of the IBM system is a punched card. Once information is recorded in this card in the form of punched holes, the card can be manipulated at tremendous rates of speed on Accounting Machine equipment. For instance, all cards could be sorted by make of automobile at the rate of 650 or 1,000 cars per minute. The cards representing these automobiles could then be listed together with detailed information at the rate of 150 lines a minute. All information would be proved and accurate. The cost of producing additional statistical reports would be extremely small inasmuch as no additional equipment aside from that normally used for registration activity would be required.

An IBM installation could produce the following reports:

1. Registration forms for all types of motor vehicles.
2. Certificate of Title forms for all types of motor vehicles.
3. Listings—Monthly lists of new registrations can be prepared at the speeds indicated above and distributed to all interested persons.
4. New car and truck lists, revocations of licenses, and other special listings could also be produced.
5. The great variety of special reports for use by administrative, police, and other agencies as conditions and situations demand could be prepared. (Again the flexibility of the equipment used does not necessitate additional purchase of equipment or additional costs of any type.)
6. Lost or damaged plate lists and labels can be produced.
7. Statistics reports on the following:
   - A. Listing of vehicle type and body style broken down by load capacity in tons, number of vehicles, and amount paid for each type of vehicle.
   - B. A report by age group of all vehicles registered, broken down by age, number, and total fees paid.
   - C. Geographic registrations statistics broken down by county and within county by class of registration, i.e., passenger car, bus, truck, tractor truck, etc. This same report could list total vehicles in the county and total fees paid by the county.

"The above represent merely a few of the reports, both statistical and accounting, which could and would be periodically prepared by the Department of Motor Vehicles.

"It should be remembered that one set of machines produces all special reports as well as furnish all of the normal requirements of accounting for the department." The same machines could perform all such functions for a consolidated Motor Vehicle Department in an efficient manner.

Copies of the detailed study covering the operations of this department have been made available and are in the files of the Fact Finding Committee.

Highway Patrol

This department patrols the highways of the state to enforce motor vehicle laws. In addition it issues operators' licenses, administers the financial responsibility law, collects accident statistics and promotes safety. No overall appraisal is made of the highway patrol. It is proposed that it should be under the Motor Vehicle Department because it is the law arm necessary to enforce control of the motor vehicle. Certainly its functions are more closely allied to the rolling stock on our highways than to the construction of those highways, which is the function of the Highway Department. It is probable that the Montana Highway Patrol could benefit from a qualified appraisal of its functions and operations regardless of what administrative branch of the State government it may serve under. With this in view, an evaluation of the possibility of such a study, if conducted by the Traffic Division of the International Association of Chiefs of Police, was requested. This organization, which specializes in such appraisals, has made such studies in over 125 states, counties, and cities in recent years. These studies usually result in substantial improvements in the observed organizations. Quotations from a September 7, 1956 letter from this organization outlining what could be done are given here for information.

"Staff review of facts gathered plus personal knowledge of your problem and needs, by Fernstrom and Carmichael, convince me that we can assist you in the following areas:

1. A study and report on the operation of the Highway Patrol including specific recommendations for improving the Patrol's traffic supervision program. (See Exhibit A for details.)
2. A second study and report dealing with driver licensing and driver improvement activities with recommendations for improvements. (See Exhibit B for details.)

"These two studies would involve approximately 23 man weeks of our staff time, excluding time of clerical personnel. The cost of these two studies would be $10,450.

"These studies will be administrative in nature and will not evaluate individuals.

"EXHIBIT A"

"The proposed study and report on operations of the Montana Highway Patrol will require approximately 15 man-weeks of time, and will cover the following areas;

"1. **THE RURAL TRAFFIC ACCIDENT AND CONGESTION PROBLEM**
Identifying that part of the whole problem which will respond to state patrol efforts, and labeling those parts which are the direct responsibility of other agencies and divisions of state government.

"2. **ORGANIZATION**
Placement and function of the Highway Patrol in the organizational structure of state government, and detailed recommendations concerning internal organization of the patrol so that there is a distinct separation of functions to be performed by each division, bureau, and section; establishing a clear-cut definition of line and staff functions; and grouping of similar or like functions to avoid overlapping and duplication of efforts.

"3. Total personnel needed including civilians and commissioned officers; recommended assignments of personnel by division, bureau, region (geographically), and time; recruitment and promotional procedures; salaries and miscellaneous working conditions.

"4. **ACCIDENT INVESTIGATION**
Quantity and quality of investigations; policies and procedures employed; techniques, training, and special equipment needed for improved proficiency.

"5. **TRAFFIC LAW ENFORCEMENT**
Quantity and quality of efforts needed to reduce the accident experience; policies and procedures; methods for improving selectivity.

"6. **EQUIPMENT**
Housing space, office equipment, mobile and special equipment needed to effect most efficient operation.

"7. **TRAINING**
Recruit, in-service, supervisory and command training programs to meet present and future needs of the patrol; training at regional and national schools; specialized training.

"8. **RECORDS AND ANALYSIS**
Identification of basic traffic record forms and summary reports; improved methods of processing record data; administrative uses of analyzed data.

"9. **ADMINISTRATION**
Departmental policies and procedures necessary for effective administration of the police supervision program.

"EXHIBIT B"

"1. **ORGANIZATION**
The relationship of driver licensing to the total program of the highway patrol, internal structure of the driver licensing activity presently employed to achieve objectives of the patrol.

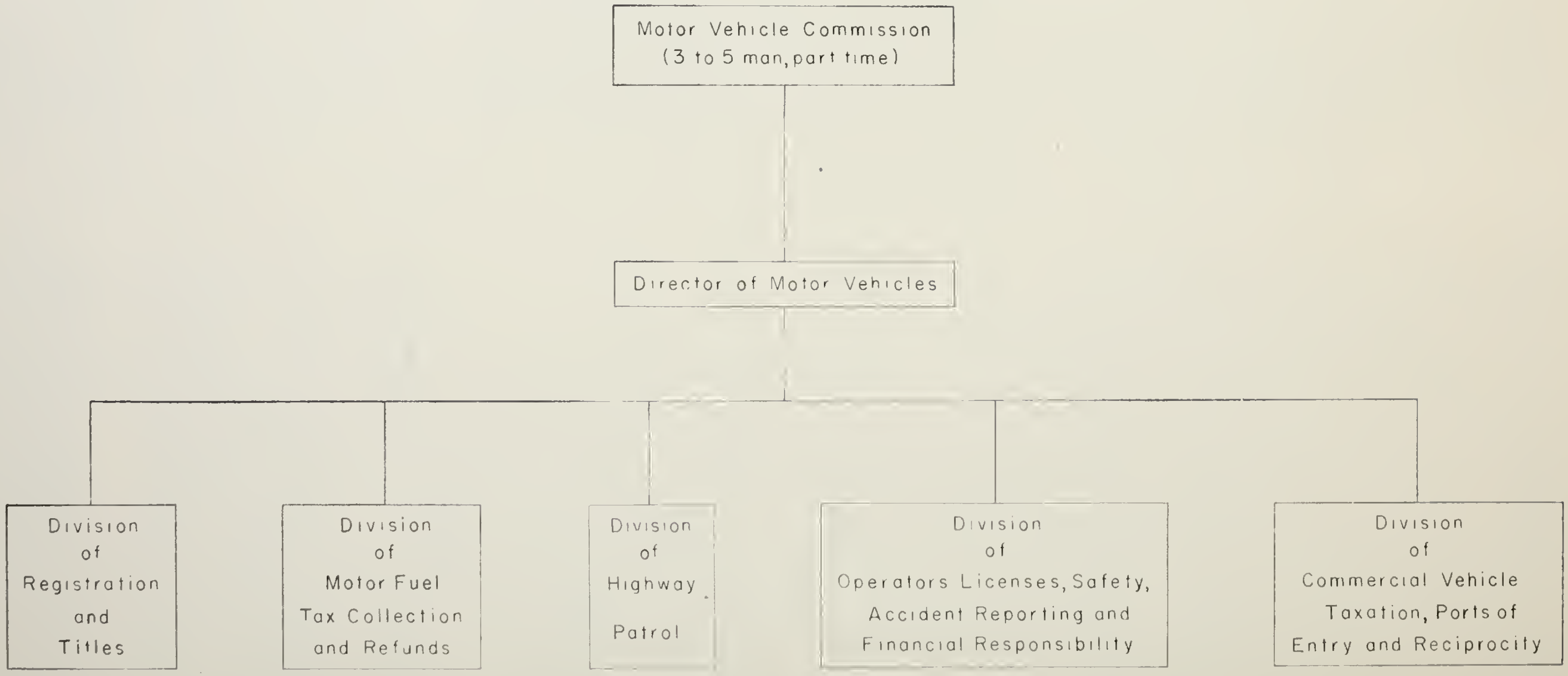
"2. **PERSONNEL**
Number, selection standards and procedures, training, supervision.

"3. **EXAMINATION AND DRIVER IMPROVEMENT STANDARDS**
Quality, adherence to, publication of, public acceptance.

"4. **RECORDS**
Availability, analysis, and use.

TABLE B-4

DEPARTMENT OF MOTOR VEHICLES
(Proposed)


Motor Vehicle Commission
(3 to 5 man, part time)
Director of Motor Vehicles
Division of Registration and Titles
Division of Motor Fuel Tax Collection and Refunds
Division of Highway Patrol
Division of Operators Licenses, Safety, Accident Reporting and Financial Responsibility
Division of Commercial Vehicle Taxation, Ports of Entry and Reciprocity

"5. **POLICIES**

Personnel, out-of-state drivers, lapsed licenses, appointments for tests, review and renewal examinations, etc.

"6. **EQUIPMENT**

Utilization, sufficiency, modernization."

Some additional appraisal of this department will be included in the separate report on safety matters.

Highway Department

This department administers the Gross Weight Vehicle law. This law provides supplemental fees for commercial vehicles at the time of registration. To have the highway administer this registration type charge is about as logical as it would be to have the Registrar of Motor Vehicles construct certain highways. This function, whether it is to collect a flat annual fee or a mileage fee, is essentially a motor vehicle control operation. As such it belongs in a motor vehicle department.

The vehicle weight control function in Montana is administered by the Highway Department Maintenance Division. Many things indicate that this is properly a Highway Department responsibility. Consequently, there is no suggestion that this function be placed in the proposed Motor Vehicle Department. However, close cooperation between this activity and ports of entry operations, discussed later, would be desirable and could be worked out.

Reciprocity Board

The Reciprocity Board of Montana which deals with taxation of vehicles in interstate movement is made up of representatives from the State Highway Patrol, the Highway Commission, the Registrar of Motor Vehicles, a member of the Board of Equalization and the Highway Commission attorney. This tends to give the Highway Commission practically full power as that commission controls three members of the five member board. It is questionable that this is a highway function. It would seem that it would be more logically placed under the control of a motor vehicle administrator since it would be his responsibility to enforce rules and regulations agreed upon with other States.

Highway Use Tax

Under any circumstances the establishment of a motor vehicle department for Montana would be a desirable forward step. If Montana is to have a highway use tax for commercial vehicles, the establishment of such a department is almost a prerequisite.

It would be necessary because of the essential coordination between registration, ports of entry, weight controls, fee collections, fuel payments and other functions. A proposed law setting up such a department is included as part of Appendix "C."

As proposed, this department would have an organization somewhat as shown in Table B-4.

The Commission membership itself is not vital since any strong group with the support of a professional administrator could operate such a department in an acceptable manner. There has been some suggestion that the Highway Commission members be made ex-officio Commissioners of Motor Vehicles. This has the merit of using an existing commission, well established politically and geographically. They also would provide a community of top side interest between highways and the vehicles using them. On the other hand, consideration should be given to the additional burdens for an already heavily worked group. Preoccupation with highways could deny adequate attention to important motor vehicle matters.

Another suggestion has been considered that a new set of commissioners be appointed using the Highway Commission districts as the geographic basis of distribution. Still another suggestion was made that the commission consist of industry type appointments requiring one man who is a motor vehicle dealer, one in the gasoline distribution business, and a third possibly from the ranks of commercial vehicle operators.

Ports of Entry

Efficient motor vehicle taxation continually adds to the demands for establishment of ports of entry for control of interstate operations. Many States of the West; Idaho, Colorado and Wyoming, among others, have operated such ports with substantial success. While, at first, they may seem burdensome to the truck operator, they can be, in fact just the opposite. Such ports can provide, in one stop, a weight check, size and equipment control check, full and authentic tax information and other details that can substantially improve the truck driver's efficiency. He can, by this one stop, avoid possible numerous checks throughout his travel in the State, be assured of uniform fee payment and essentially, avoid the possibility of fines due to illegal operation.

In Montana there are about 21 major points of entry into the State. About 1,700 commercial vehicles enter the State or depart via these points daily. The ten principal points with total observed two-way daily traffic volumes of 1,363 commercial vehicles may be listed as follows:

Missoula (Jct. US 10 and 10A)	260
Glendive (US 10)	193
Sidney	152
Culbertson	145
Billings (US 310 at Border)	127
Miles City (US 212)	120
Sweet Grass	103
Hardin	89
Dillon	87
Kalispell (US 2)	87

All of the above are near the border except the Missoula station. The other eleven points account for a total less than 350 commercial vehicles per day, certainly too insignificant for consideration of permanent ports of entry installations.

Operation of a port of entry on a 24-hour basis would call for a crew of about four men per station. This would entail costs of about $14,000 annually for salaries. Other incidentals would probably bring this to $20,000 as an absolute minimum. A roving crew, consisting of two men with car and equipment, would probably cost about $15,000 per year. If six permanent stations and three roving crews were established, a field cost of about $165,000 could result. Office support could come to about $20,000 per year for a grand total of $185,000. Other States' experience indicate a cost of about $20,000 to $30,000 per station. Colorado, for example, appropriates about $264,000 per year for salaries to operate fifteen permanent and ten roving ports. It expends an additional $180,000 for so-called capital operation. All these stations service about 4,500 vehicles per day, substantially more than Montana could expect. Idaho, which checks about 1,800 vehicles per day, expends $178,000 per year to operate six permanent and seven roving ports. In addition to these costs would be the provision of physical properties and buildings. These amounted to $375,000 in Colorado. An Idaho figure for physical properties was not determined. Both Colorado, with annual port of entry revenue of $500,000, and Idaho with $950,000, appear to be satisfied that these are profitable operations. It is probable that much more revenue can be attributed to these functions than indicated in Colorado and Idaho, as only actual collections at ports are reported. The overall control provided would appear to tighten many revenue leaks that would otherwise exist. A possible port of entry law is included as part of Appendix "C."

Table B-5

PORT OF ENTRY DATA

Item	Colorado	Idaho
Number of Stations		
Permanent	15	6
Roving	10	7
Where Located	Major Traffic Points	Major Traffic Points
Total Number of Operators Per Station	4-7	4
Hours of Operation	Continuous at Permanent Stations	Continuous at Permanent Stations
Average Monthly Salary	$280—$320	$325
Annual Cost of Program	$444,000	$178,000
Operators Bonded	Yes—$500	Yes—$2,500
Average Number of Commercial Vehicles Serviced Each Day		
At All Stations	4,500	1,800
At Minimum Stations	250	150
Police Authority	Can Restrain for State Patrol Only	Manned by State Police

Appendix C

A PROPOSED MONTANA HIGHWAY USE ACT

A BILL FOR AN ACT ENTITLED: "AN ACT IMPOSING TAXES IN CONSIDERATION OF THE USE OF THE PUBLIC HIGHWAYS OF MONTANA BY MOTOR VEHICLES; DEFINING THE TERMS MOTOR VEHICLES, PERSON, GROSS WEIGHT, TRAILING UNIT, CARRIER, PUBLIC HIGHWAY, DEPARTMENT, AND FARM VEHICLES; MAKING IT UNLAWFUL TO USE THE PUBLIC HIGHWAYS OF THE STATE WITHOUT FIRST SECURING A USE PERMIT; PROVIDING THE METHOD FOR OBTAINING A USE PERMIT; PROVIDING RATE SCHEDULES; PROVIDING FOR SPECIAL MOBILE EQUIPMENT; PROVIDING THE DATES UPON WHICH THE TAXES IMPOSED ARE DUE, AND THE PLACE OF PAYMENT; GRANTING TO THE DEPARTMENT OF MOTOR VEHICLES POWER TO ISSUE TEMPORARY USE PERMITS; PROVIDING THE METHOD OF MAKING RETURNS; FIXING LIABILITY FOR TAXES UPON THE CARRIER AND OWNER; PROVIDING CERTAIN EXCEPTIONS IN THE CASE OF SPECIAL KINDS OF TRAILING UNITS, FOR PERSONS ENTITLED TO RECIPROCITY, FOR OPERATORS OF CERTAIN INTERSTATE FLEETS; PROVIDING FOR TRIP PERMITS; GIVING THE DEPARTMENT OF MOTOR VEHICLES POWER TO DETERMINE THE TAX DUE; PROVIDING FOR HEARINGS IN THE DEPARTMENT; PROVIDING AN EXCLUSIVE METHOD FOR THE JUDICIAL REVIEW OF DECISIONS OF THE DEPARTMENT; PROVIDING PROCEDURES FOR THE COLLECTION OF TAXES DUE AND VESTING POWER IN THE DEPARTMENT TO ISSUE CERTIFICATES WHICH WHEN FILED HAVE THE STATUS OF JUDGMENTS OF THE DISTRICT COURTS; PROVIDING FOR LIENS ON MOTOR VEHICLES FOR UNPAID TAXES AND PROVIDING THE METHOD OF FORECLOSURE OF SUCH LIENS AND THE PRIORITY THEREOF; PROVIDING FOR THE REVOCATION OF REGISTRATIONS OF MOTOR VEHICLES FOR NON PAYMENT OF TAXES; PROVIDING THE METHOD OF SERVING NOTICES AND PROGRESS AND FOR THE APPOINTMENT OF THE SECRETARY OF STATE AS AN AGENT UPON WHOM NOTICE OR PROCESS MAY BE SERVED; PROVIDING FOR INTEREST AND PENALTIES, BOTH CIVIL AND CRIMINAL, FOR VIOLATIONS OF THE ACT AND RULES ENACTED PURSUANT THERETO; GIVING JUSTICE AND DISTRICT COURTS CONCURRENT JURISDICTION OF MISDEMEANORS COMMITTED UNDER THE ACT; PROVIDING THAT VIOLATIONS OF THE ACT ARE IN PART COMMITTED IN HELENA; PROVIDING FOR THE PROSECUTION OF VIOLATIONS BY THE ATTORNEY GENERAL AND THE COUNTY ATTORNEYS; PROVIDING FOR REFUNDS; GIVING THE DEPARTMENT OF MOTOR VEHICLES POWERS TO ADMINISTER AND ENFORCE THE ACT, REQUIRE SECURITY FOR THE PAYMENT OF TAXES DUE OR TO BE DUE, TO MAKE RULES FOR ITS OWN PROCEDURES, TO DESIGNATE PORTS OF ENTRY, TO APPOINT DEPUTIES, TO GENERALLY MAKE RULES FOR THE ENFORCEMENT AND ADMINISTRATION OF THE ACT; PROVIDING FOR THE DISPOSITION OF REVENUES RECEIVED UNDER THE ACT; PROVIDING FOR SEVERABILITY; REGULATING THE TRANSFER OF USE PERMITS; LIMITING MUNICIPAL TAXATION OF MOTOR VEHICLES; PROVIDING A SHORT TITLE; REPEALING CERTAIN ACTS AND PARTS OF ACTS AND SAVING THE PENALTIES UNDER REPEALED ACTS; PROVIDING FOR AN EFFECTIVE DATE.

Be It Enacted by the Legislative Assembly of the State of Montana:

Section 1. **Definitions. (a)** "Person" shall include an individual, co-partner, society, association, corporation, joint stock company, lessee, and any combinations of individuals; an executor, administrator, receiver, trustee or other fiduciary.

(b) "Motor Vehicle" solely for the purposes of this Act, shall include any automobile, truck, tractor, bus, or other self-propelled device used upon the public highways, otherwise than on fixed rails or tracks. The term "Motor Vehicle," solely for the purposes of this Act, shall not include:

(1) Automobiles designed primarily for the carriage of passengers and having a seating capacity of not to exceed eight persons.

(2) A road roller, tractor crane, truck crane, power shovel, road building machine, snow plow, road sweeper, sand spreader, or well driller.

(3) Vehicles used exclusively in transporting students or instructors to or from school or authorized school activities or functions.

(4) Vehicles owned or operated by the United States, the State of Montana, or any other state or, any county, city, town or municipality in this state, or any other state or by any agency or department thereof.

(5) Vehicles operated by fire patrol associations and used exclusively for the purpose of transporting persons or property in connection with the patrolling of forests for the prevention of fire or the fighting of forest fires.

(6) Vehicles operating exclusively over roads or thoroughfares in private ownership.

(7) Vehicles used exclusively as hearses or ambulances.

(8) Vehicles operated exclusively on any road or thoroughfare, other than a State highway or county road, pursuant to an agreement with any agency of the United States or with a licensee of such agency, or both, provided such agreement imposes upon the user of such road or thoroughfare the obligations either to construct such road or thoroughfare at his own expense, to maintain the same at his own expense, or to pay such agency or licensee of such agency a reasonable consideration for the use or right-of-way of such road or thoroughfare.

(9) Vehicles taxed under the provisions of Chapter 133, Laws of 1953.

(c) The term "gross weight of motor vehicle" as used herein shall mean the weight of the motor vehicles plus the weight of the maximum load to be carried thereon plus the weight of any trailing unit or units to be drawn thereby plus the weight of the maximum load to be carried on such trailing unit or units.

(d) The term "trailing unit" shall mean any trailer, semi-trailer, dolly or other wheeled device of any kind drawn by a motor vehicle but shall not include instruments of husbandry designed to be used for agricultural purposes, house trailers designed and exclusively used for the occupancy of persons or small utility trailers of less than 10,000 pound gross weight not regularly used in a combination vehicle movement.

(e) The term "carrier" shall mean any person having the lawful use or control or the right to the use or control of any motor vehicle.

(f) The term "public highway" shall mean any public highway, street, avenue, road, public place, public driveway or any other public way.

(g) The term "department" shall mean the Motor Vehicle Department of Montana.

(h) The term "farm vehicle" shall mean motor vehicles of 24,000 pounds or less gross weight owned and operated by ranchers or farmers in the transportation of their own ranch, farm, orchard, or dairy products from point of production to market, or of supplies, commodities, or equipment to be used on the ranch, farm, orchard, or dairy, or in the infrequent or seasonal transportation by one farmer for another for any purpose other than commercial hire of products of the farm, orchard or dairy, or of supplies or commodities to be used on the farm, orchard or dairy, except motor trucks owned and operated by cooperative associations or cooperative marketing associations.

Section 2. **Highway Use Permit.** (a) It shall be unlawful for any person to operate a motor vehicle upon the public highways of the State without a use permit to be issued as herein provided.

(b) Each person desiring to operate any motor vehicle upon the public highways of this State shall apply for a use permit upon forms to be prescribed by the Department of Motor Vehicles, except as provided in Section 4 (c) hereof. The application shall be filed with the County Treasurer of the county in which the motor vehicle is principally domiciled. At the time such application is filed the County Treasurer shall collect the registration fees provided by law, the property taxes due upon such motor vehicle, and that portion of the use tax calculated under Schedule I of Section 3 of this Act. When such amounts have been collected the County Treasurer shall then forward to the Department of Motor Vehicles the application, together with such other information as shall be prescribed by the Department of Motor Vehicles. Upon the receipt of such application the Department of Motor Vehicles shall issue a use permit to the applicant and forward to the applicant evidence of the use permit in the form of such tag, plate, certificate or other device as shall be prescribed by the Department of Motor Vehicles.

(c) In determining the portion of the use tax calculated under Schedule I of Section 3 of this Act, the County Treasurer shall use the gross weight of the motor vehicle as declared by the applicant, upon the application form. This determination of the County Treasurer shall be tentative and the Department of Motor Vehicles shall have the power to determine the correct gross weight of such motor vehicle and to calculate the tax upon the basis of such correct gross weight. The determination of the Department of Motor Vehicles shall be conclusive unless reviewed in the time and manner provided in Section 9 of this Act. Upon a determination that additional tax is due under Schedule I of Section 3, such tax shall be paid to the County Treasurer. If the determination of an additional tax is made before the use permit is issued, the Department of Motor Vehicles may withhold the issuance of a use permit until such additional tax has been paid or if a use permit has been granted may revoke the use permit unless the additional tax plus any penalty and interest is paid within such time as may be granted by the Department of Motor Vehicles.

(d) The taxes imposed under Schedule I of Section 3 of this Act shall be due on the 1st day of January in each calendar year provided, however, that application may be made for any motor vehicle which has not been operated on the highways of this State between January 1st and June 30th, both dates inclusive, for a use permit for the period from July 1st to December 31st, both dates inclusive, upon the payment of ½ of the tax otherwise due. In such event the tax shall be due on July 1st.

(e) For the purpose of facilitating the administration of this Act and to prevent undue hardship upon the applicants for use permits, the Department of Motor Vehicles shall have the power to provide by rule the conditions under which temporary use permits may be used by the Department or by County Treasurers, the form of such temporary use permits, the period during which such temporary use permits shall be valid for such security as may be required for the payment of taxes due or to be due, for the surrender of such temporary use permits, and generally the procedure relating to the issuance of such temporary permits.

Section 3. **Imposition of Tax.** (a) In addition to any other tax or fee imposed by law there is hereby levied and imposed a highway use tax for the privilege of operating any motor vehicle upon the public highways of this State. Such tax is imposed upon the carrier except that where the carrier is not the owner of such vehicular unit, the tax shall be a joint and several liability of both the owner and carrier. Such tax is imposed in an amount equal to the sum of the amounts calculated under Schedules I and II hereof.

Schedule I.

There is hereby imposed a tax to be calculated upon the gross weight of such vehicles as follows:

Gross Weight of Motor Vehicles (Pounds)	Amount of Tax	
	Farm Vehicles	Commercial Vehicles
0 to 6,000	$ 4.00	$ 6.00
6,001 to 8,000	5.00	16.00
8,001 to 10,000	6.00	30.00
10,001 to 12,000	7.00	36.00
12,001 to 14,000	8.00	42.00
14,001 to 16,000	10.00	48.00
16,001 to 18,000	11.00	54.00
18,001 to 20,000	12.00	60.00
20,001 to 22,000	13.00	66.00
22,001 to 24,000	14.00	72.00
24,001 to 26,000	....	78.00
26,001 to 28,000	....	84.00
28,001 to 30,000	....	90.00
30,001 to 32,000	....	96.00
32,001 to 34,000	....	102.00
34,001 to 36,000	....	108.00
36,001 to 38,000	....	114.00
38,001 to 40,000	....	120.00
40,001 to 42,000	....	126.00
42,001 to 44,000	....	132.00
44,001 to 46,000	....	138.00
46,001 to 48,000	....	144.00
48,001 to 50,000	....	150.00
50,001 to 52,000	....	156.00
52,001 to 54,000	....	162.00
54,001 to 56,000	....	168.00
56,001 to 58,000	....	174.00
58,001 to 60,000	....	180.00
60,001 to 62,000	....	186.00
62,001 to 64,000	....	192.00
64,001 to 66,000	....	198.00
66,001 to 68,000	....	204.00
68,001 to 70,000	....	210.00
70,001 to 72,000	....	216.00
72,001 to 74,000	....	222.00
74,001 to 76,000	....	228.00
76,001 to 78,000	....	234.00
Over 78,000	....	35 cents per CWT.

In addition to other fees for licensing of vehicles, there shall be paid and collected annually:

for each house trailer based upon over-all length of body as set by licensee in his application, a fee equal to twenty-five cents (25c) for each foot of over-all trailer body length, exclusive of bumpers and hitch.

for each trailer other than house trailers and not regularly used in a combination vehicle movement an annual fee shall be charged as follows:

up to 3,000 for personal use ......exempt
up to 3,000 for commercial use....$ 3.00
3,001 to 6,000 for any use.............. 5.00
6,001 to 10,000 for any use.............. 8.00

Schedule II.

There is hereby imposed a tax to be calculated by multiplying the number of miles such motor vehicle is operated on the public highways in this State by the approprite weight group tax, according to Table A or Table B, as the case may be.

Table A shall apply only to those carriers using gasoline as defined by Section 1, Chapter 17, Laws of 1955, purchased within the State of Montana.

Table B shall apply to carriers using fuel of whatever kind purchased out of the State of Montana and by persons using any fuel other than gasoline as above defined, wherever purchased.

Tables A and B shall apply to carriers using gasoline puchased part in and part out of the State of Montana but in no event shall Table A be applied in the computation of any tax to more than the maximum miles which could be traveled in this State on such gasoline purchased within the State.

Any carrier subject to and paying all the taxes due under Table B of this Schedule II shall be exempt from the provisions of the Special Fuel Tax Act (Chapter 162, Laws 1955) upon the fuel used in the vehicles reported for taxation under Table B, Schedule II.

Gross Weight of Motor Vehicle (Pounds)	Weight Group Tax Rate (Mills) Table A	Weight Group Tax Rate (Mills) Table B
24,001 to 26,000	2.8	16.9
26,001 to 28,000	4.0	18.6
28,001 to 30,000	5.2	20.3
30,001 to 32,000	6.5	21.9
32,001 to 34,000	7.7	23.7
34,001 to 36,000	9.0	25.3
36,001 to 38,000	10.2	27.0
38,001 to 40,000	11.4	28.7
40,001 to 42,000	12.7	30.3
42,001 to 44,000	14.0	32.0
44,001 to 46,000	15.2	33.7
46,001 to 48,000	16.4	35.3
48,001 to 50,000	17.7	37.1
50,001 to 52,000	18.9	38.7
52,001 to 54,000	20.1	40.4
54,001 to 56,000	21.4	42.1
56,001 to 58,000	22.7	43.8
58,001 to 60,000	23.9	45.4
60,001 to 62,000	25.1	47.1
62,001 to 64,000	26.3	48.8
64,001 to 66,000	27.7	50.5
66,001 to 68,000	28.8	52.1
68,001 to 70,000	30.1	53.8
70,001 to 72,000	31.3	55.5
72,001 to 74,000	32.6	57.2
74,001 to 76,000	33.8	58.8
76,001 to 78,000	35.1	60.5
Over 78,000	Add 1.5 mills for each additional 2,000 pounds	Add 1.9 mills for each additional 2,000 pounds

Nothing contained in this Act shall be construed to authorize motor vehicle weight units in excess of those permitted by the vehicle and traffic laws.

Section 4. (a) The provisions of this Act shall apply to all motor vehicles using the public highways of the State of Montana except to the extent and only to the extent provided in Section 4 of this Act.

(b) The term "special mobile equipment" for the purposes of this section shall mean every vehicle not designed or used primarily for the transportation of persons or property and incidentally operated or moved over the highways, including road construction equipment or maintenance machinery, ditch-digging apparatus, well-boring apparatus and concrete mixers. The foregoing enumeration shall be deemed partial and shall not operate to exclude other such vehicles which are within the general terms of this section; provided, that the term "special mobile equipment" does not include any of the following:

(1) A vehicle such as a truck, truck-tractor, trailer, or semi-trailer, originally designed for the transportation of persons or property to which machinery has been attached;

(2) Dump truck and truck-mounted transit mixers, or any rubber-tired truck or trailer, self-propelled, or towed, from which machinery can be removed and such vehicles used to transport persons or property.

(c) Every person, firm, partnership, or corporation who owns, leases or rents special mobile equipment as defined in section 4 (b) and occasionally moves said equipment on, over, or across the highways of the State of Montana shall not be subject to registration of said equipment nor be required to pay the fees and charges provided in this Act, but prior to any movement on the highways, each piece of equipment shall display an equipment identification plate attached thereto. The annual application for the identification plate shall be made to the County Treasurer prior to or before any such piece of equipment is moved over the highway on a form furnished by the Department of Motor Vehicles, together with payment of a fee of five dollars ($5.00). Provided that publicly owned special mobile equipment and equipment implements of husbandry designed and used exclusively by an owner in the conduct of his own farming operations are exempt from the provisions of this Act. The County Treasurer shall issue to each applicant a single metal plate with a distinguishing number and a receipt for the fee collected, which receipt shall contain the name and address of the applicant, the number of the plate issued, the serial number of the equipment, and a brief description of the same. The receipt shall be carried in a suitable container attached to the equipment or immediately available for inspection of any peace officer or highway patrolman. The identification plate for special mobile equipment shall expire on December thirty-first of each year in which it was issued. In any case where the units herein described are operated on the highways of this State herein provided for, it shall be conclusively deemed that the carrier has waived the option provided by this subsection.

(d) Any carrier whose vehicle is duly registered and licensed under the laws of a foreign State operating a motor vehicle which is not a part of an interstate fleet as defined by Chapter 256, Laws of 1955, or which is not entitled to reciprocity under the provisions of Chapter 143, Laws of 1955, may in lieu of obtaining a use permit as herein provided for vehicles operating at a weight of more than 24,000 pounds gross weight, obtain single trip use permit upon payment of the fees herein provided. The fees for such special use permit shall be $3.00 plus an amount calculated under Table B of Schedule II of Section 3. For vehicles of 24,000 pounds gross weight, or less, the fee shall be $3.00 for each trip for the first 200 miles or less; $6.00 for each trip over 200 miles, and up to 400 miles, or less; $9.00 for each trip over 400 miles. It shall be lawful for a carrier to obtain more than one single trip permit in each year but any carrier who operates a vehicle upon the highways of this State at a point beyond the first point at which such special trip permits may be obtained after his entry into the State of Montana, shall be conclusively deemed to have elected to forfeit his right to a special trip permit and to have subjected himself to general laws relating to highway use permits in Montana. In such event the Department shall have the power to determine the amount of tax to be paid for the use permit for such motor vehicle and to impound the motor vehicle until such amount has been paid or until security for the payment thereof, in an amount and form satisfactory to the Department has been furnished.

(e) Carriers operating motor vehicles which are entitled to reciprocity under the provisions of Chapter 143, Laws of 1955, may obtain a use permit for such motor vehicles by filing with the Department an application therefor on forms to be provided by the Department. In such case, reciprocity may be extended to the taxes imposed under Schedule I of Section 3 hereof, but in no case shall any reciprocity law or agreement operate to relieve such carrier of the taxes imposed under Schedule II of Section 3 hereof. The Department is hereby empowered to provide by rule for the collection of the taxes imposed by Schedule II of Section 3 in advance at the point at which such motor vehicle enters Montana or at the time of filing the return as provided in Section 5 hereof. In the latter case the Department may require security for the payment of such taxes as may be incurred under Schedule II of Section 3.

(f) Carriers operating interstate fleets under the provisions of Chapter 246, Laws of 1955, may obtain special use permits as herein provided; and those Montana operators electing to register an interstate fleet and those foreign operators' carriers who have motor vehicles principally domiciled in the State of Montana shall make application for such use permits through the office of the County Treasurer of the county in which the motor vehicle is principally domiciled. Carriers operating vehicles which are not principally domiciled in Montana shall make application for such use permits at the Department of Motor Vehicles. All of the taxes imposed by this Act are hereby imposed upon those motor vehicles constituting part of an interstate fleet which are registered or licensed in Montana. All of the taxes imposed by Schedule II of Section 3 of this Act (but not Schedule I of Section 3) are hereby imposed upon the motor vehicles which are not licensed or registered in Montana. The use of the term "imposed upon motor vehicles" shall not relieve the carrier or owner from the liability imposed by this Act for the payment of the taxes due.

(g) The Department shall have power to provide forms for any carrier claiming any exemption granted under Section 4 or Section 1 or any other portion of this Act and shall have the power to determine whether such exemptions shall be allowed. When any exemption is claimed (and deserved) all taxes due may be determined by the Department. The determination of the Department as to any claimed exemption shall be conclusive unless reviewed under Section 9 of this Act.

Section 5. **Returns under Schedule II of Section 3.** For the purposes of this Act the calendar year shall be divided into four quarters as follows: January 1 to March 31; April 1 to June 30; July 1 to September 30; October 1 to December 31. On or before the thirtieth day following the close of each quarter during which it operated any motor vehicle on the public highways of this State, every carrier subject to the terms of Schedule II of Section 3 shall file with the Department of Motor Vehicles a return. The return shall be on forms provided by the Department and shall contain such data and information as the Department shall require to be included therein. The Department may grant a reasonable extension for filing returns when good cause exists therefor. Each return shall have annexed thereto a certificate to the effect that the statements contained therein are true.

Section 6. **Payment of Tax Under Schedule II of Section 3.** At the time of filing a return as required by Section 5 hereof, every carrier shall pay to the Department of Motor Vehicles the tax imposed by Schedule II of Section 3 of this Act for the period covered by such return. Such tax shall be due and payable at the time of filing such return or if a return is not filed when due, on the last day on which the return is required to be filed. The Department may for good cause shown and upon such security as it may require extend the time for the payment of tax due under Schedule II of Section 3.

Section 7. **Owner Responsible.** In those instances where the carrier is not the owner of the motor vehicle the owner may maintain the records, file the returns and pay the taxes, required by this Act or the rules enacted under the powers granted to the Department herein, but in any event shall be jointly and severally liable with the carrier for the taxes, interest and penalty imposed under the terms of this Act.

Section 8. **Determination of Tax and Penalties.** (a) In case any application for a use permit is false, insufficient or unsatisfactory, or in case any return filed pursuant to this Act is false, insufficient or unsatisfactory, or in case no application is filed for a use permit or if no return is made for any period the Department of Motor Vehicles shall determine the amount of tax, penalty and interest due from such information as is available to the Department. Such determination shall be made within 3 years after the application or return is filed or at any time if an application or return is not filed. The Department shall give notice of any such determination to the person liable for such tax, interest, and penalty. Such determination shall finally and conclusively fix such tax unless the person against whom it is assessed shall within thirty days after the date upon which such notice is mailed by the Department, apply in writing to the Department for a hearing or unless the Department shall of its own motion reduce the same. When a hearing is requested the Department shall fix a date and place for such hearing and give notice thereof to the person requesting the same. At such hearing the parties shall have the right to appear and be represented by counsel and to introduce evidence. After such hearing the Department shall give written notice of its decision to the persons against whom the tax is assessed. The decision of the Department may be reviewed by a proceeding under Section 9 of this Act. If the decision is not reviewed as provided in Section 9 then the determination of the Department shall be conclusive and final for all purposes.

Section 9. **Appeals.** (a) Within thirty days after notice of the decision of the Department fixing a tax under this Act, any person aggrieved thereby may file in the office of the Clerk of any District Court of this State a petition for review of such decision. A copy of such petition shall be served upon the Department. As a prerequisite to the filing of such petition, the petitioner shall deposit with the Clerk of the Court the amount of the tax, penalty and interest assessed by the Department or in lieu thereof a bond executed by a surety company authorized to do business in Montana in the amount of the taxes, interest and penalty so assessed. Such bond shall be approved by the Judge and shall be to the effect that the surety will pay such amounts of tax, interest and penalty as may be found to be due upon a determination of the petition for review. The Court shall have no jurisdiction of such petition until the deposit herein provided for has been made or the bond as approved filed.

The petition shall contain a true copy of the decision of the Department and shall concisely set forth the respects in which the decision is in error. No other or further pleading shall be permitted. Upon the filing of the petition the Court shall set the same for hearing upon not less than twenty days notice to the Department and petitioner and the petitions shall be heard by the Judge sitting without a jury. The trial shall be conducted in the manner of trials of civil cases in the District Court except that the decision of the Department shall be presumptive evidence of correct amount of the tax, penalty and interest due and the burden shall be upon the petitioner to prove that there is no tax, penalty or interest due or if a tax, interest or penalty is due, the correct amount thereof. After the hearing the Judge shall determine the correct amount of tax, interest and penalty due and shall by judgment direct that the Clerk of the Court, out of the deposit in his hand, pay the amount so found due to the Department or, where a bond has been furnished, shall enter judgment for such amount against the petitioner and the surety, unless an appeal be taken to the Supreme Court within thirty days after notice of judgment. The taking of an appeal shall stay all proceedings until the appeal is decided or dismissed. Appeals shall be taken to the Supreme Court in the manner of appeal in civil actions, except that the time within which an appeal to the Supreme Court may be taken is thirty days after notice of the Court's order. The record on appeal shall consist of the petition for review, the Court's order thereon, and a bill of exceptions to be settled as in civil cases tried in the District Court.

In an appeal to the Supreme Court, the fact findings of the District Court, express or implied, shall have the weight of and shall be reviewed as fact findings of a District Court in equity cases, tried by the district Court without a jury.

The remedy provided by this section for review of a decision of the Department of Motor Vehicles shall be the exclusive remedy available to judicially determine the liability of any person for taxes, interest or penalty under this Act.

Section 10. **Proceedings to Recover Tax.** (a) Whenever any person shall fail to pay when the same is due, any tax which he is required to pay under this Act, the Department may issue a certificate under its official seal setting forth the amount of the tax, penalty and interest due, and the names of the person or persons by whom it is owing and a description of the vehicles out of which the tax arose, directed to the sheriff of any county of the State, commanding him to levy upon and sell the real and personal property of such person, found within his county, for the payment of the amount thereof, with the added penalties, interest and the cost of executing the same, and to return such certificate to the Department and to pay to it the money collected by virtue thereof within sixty days after the receipt of such certificate. The sheriff shall, within five days after the receipt of the certificate, file with the Clerk of the District Court of his county a copy thereof, and thereupon the Clerk shall enter in the judgment docket the name of the person mentioned in the certificate, and the amount of the tax and penalties for which the certificate is issued and the date when such copy is filed, and thereupon the amount shown in such certificate so docketed shall become a lien upon the title to and interest in real property or chattels real of the person or persons against whom the certificate is issued in the same manner as judgment duly docketed in the office of such Clerk. The said sheriff shall thereupon proceed upon the certificate in all respects, with like effect, and in the same manner prescribed by law in respect to executions issued against property upon judgments of a court of record, and shall be entitled to the same fees for his services in executing the certificate to be collected in the same manner. In the discretion of the Department a certificate of like terms, force and effect may be issued and directed to any officer or employee of the Department, and in the execution thereof such officer or employee shall have all the powers conferred by law upon sheriffs, but shall be entitled to no fee or compensation in excess of actual expenses paid in the performance of such duty. Upon such filing of a copy of a certificate in the office of the

Clerk of the District Court, the Department shall have the same remedies to enforce the claim for taxes against any person as if the people of the state had recovered judgment against such person for the amount of the tax.

(b) In a like manner, the Department may issue under its official seal a certificate as described in sub-section (a) hereof and file the same with the Registrar of Motor Vehicles or the successor to his duties. The certificate shall be indexed against the title of the motor vehicle. Upon the filing of such certificate, the Department may forthwith collect such amount from such person by seizing any motor vehicle or vehicular unit subject to the lien of the tax and may thereafter sell it at public auction to pay the fees, taxes, interest and penalties and any costs incurred on account of the seizure and sale, after giving ten days' notice of the sale in writing to such person. The proceeds of such sale, except as hereinafter provided, shall be paid into the state treasury provided however, any excess received upon the sale over the amount of the fees, taxes, interest and penalties shall be refunded to such person, and provided, however, that if the amount received upon the sale after payment of liens, if any, is not sufficient to pay the amount of taxes, interest and penalty due, the Department may proceed to use any of the other remedies provided in this Act for the collection of the amount so remaining due.

In the case of vehicles registered under the laws of foreign states, the lien shall attach and the power of sale shall be effective in the same manner as if the motor vehicles were registered under the laws of this state.

The lien herein created shall be paramount to all other liens existing under the laws of this or any foreign state except to the extent herein provided. In those cases where there is a bona fide lien or liens duly filed in the office of the Registrar of Motor Vehicles or the successor to his duties prior to the date of the filing of the certificate issued by the Department, the first proceeds of the sale above provided for, shall, to the extent of the amount due on such lien or liens, be paid to the holders thereof in the order of the priority, and the balance shall be paid into the State Treasury as above provided. The power of seizure and sale herein created shall not be abrogated or impaired by the fact that the amount of a prior lien is in excess of the amount which is or may be realized at a sale of the vehicles subject to the tax lien.

In those cases where the motor vehicle subject to the lien is not registered under the laws of this state, the sale may be had in the same manner except that the proceeds of the sale shall be deposited in a suspense account and held for a period of 90 days. If, within such period, any person files a claim and is able to prove to the Department that he was the owner of a bona fide lien which was duly filed for record according to the laws of the state in which the vehicle was registered prior to the date upon which the certificate was filed by the Department, then the owner of such lien shall be paid the amount of such lien to the extent that the proceeds of the sale are sufficient and the balance in the suspense fund shall be paid into the state treasury. If no claims are filed within the 90 day period the money in the suspense account shall be paid into the state treasury. The rejection of a claim under this section shall be deemed a decision of the Department reviewable as, and only, as provided in Section 9 hereof.

(c) In addition to the foregoing proceedings, in case of default of any person to pay within the time limited herein any taxes, penalties or interest which he is required to pay under the provisions of this article, the Department shall revoke all registration plates of all motor vehicles of such persons on account of such default.

(d) No execution shall be levied under sub-section (a) hereof and no sale shall be had under sub-section (b) and no revocation of license affected under sub-section (c) hereof until the tax liability has been finally determined as provided in Sections 8 and 9 thereof. In the event of a judicial review under Section 9, all liens arising under this section shall be released, upon the filing of the bond or deposit of cash as provided in said Section 9. Any person may, at any time, procure the release of any certificate, judgment or lien created by this Act and the cancellation of any revocation of licenses provided for in sub-section (c) hereot by paying the taxes, interest and penalties due or by posting with the Department a bond, executed by a surety company authorized to do business in Montana, in the amount of the taxes, interest and penalties due and interest to accrue and conditional to the effect that the surety will pay when the same is finally determined the amount of the taxes, interest and penalties accruing interest.

(e) The remedies provided in this Section shall be cumulative and the Department may exercise any remedy provided in this Section without necessity of any prior resort to any other remedy.

(f) The operation by any person resident or non-resident of a motor vehicle upon the public highways of this state or the operation upon the public highways of this state of a motor vehicle owned by a resident or non-resident shall be deemed to be an appointment of the Secretary of State as an agent upon whom service of any notice or process, relating to the liability for taxes, interest or penalties or the remedies for the collection of the same, arising under this Act, may be made as hereinafter provided. Service of notice or process upon the Secretary of State where the same is provided for by this Act shall be equivalent to personal service in the State of Montana.

(g) Service of any notice required by this Act or the rules of the Department adopted under the powers herein granted may be made as follows:

(1) Personally by delivery of such notice to the person or persons affected thereby.

(2) In the alternative by mailing to such person at the address shown in the most current ap-

plication for a use permit on file in the Department or if no use permit is on file to any other address shown in the files or records of the Department.

(3) If there is no address shown in the records of the Department and the person affected thereby cannot, after due diligence, be found, there shall be attached to the notice and mailed to the Secretary of State of the State of Montana, a certificate stating the conclusion that there is no address for such person in the records or files of the Department and that such person cannot, after due diligence, be found in the State of Montana.

Upon a Non-Resident:

(1) By personal service of such notice upon such person and for the purpose of this Act any truck driver or other individual in charge of a motor vehicle used upon the public highways of this state shall be deemed to be an agent upon whom service of notice or process relating to the liability for taxes, penalties or interest or the remedies for the collection of the same, arising under this Act may be made, or

(2) In the alternative, by mailing said notice to the Secretary of State of the State of Montana and a duplicate thereof to such person at the address shown for such person in the most current application for a use permit on file in the Department, or if there is no such address on file, to such other address as may be found in the records of the Department or if there is no address shown in the files of the Department, to any address at which, in the opinion of the Department, such person might be reasonably found.

Service by mail on both residents and non-residents as herein provided shall be complete when the envelope containing such notice, duly addressed and with postage prepaid; is deposited in the United States mails.

Section 11. **Penalties.**

(a) It shall be unlawful for any person to do any of the following:

(1) Use, or cause or permit to be used, any public highway in this state for the operation of a motor vehicle subject to the provisions of this Act without first obtaining the permit required under this Act, or without carrying upon each such motor vehicle the permit and the tag, plate or sticker required under this Act or the rules adopted by the Department under the provisions of this Act;

(2) Operate, or cause or permit to be operated, on any public highway any such motor vehicle having an actual gross weight in excess of the gross weight set forth on the permit issued for such motor vehicle;

(3) Fail to make any return required under this Act;

(4) Make any false return;

(5) Fail to keep records of operations as the Department shall prescribe;

(6) Violate any other provisions of this Act or any reasonable rule or regulation promulgated by the Department.

Any person who violates any provision of this Section 11 (a) upon a first conviction shall be punishable by a fine of not less than one hundred dollars ($100.00) or more than two hundred fifty dollars ($250.00) and upon a second or subsequent conviction by a fine of not less than two hundred fifty dollars ($250.00) or more than five hundred dollars ($500.00) or by imprisonment for not more than ten (10) days. The penalty or punishment imposed under this sub-section 11 (a) shall not be deemed for any purpose a penal or criminal penalty or punishment and shall not impose any disability upon or affect or impair the credibility as a witness, or otherwise, of any person convicted thereof.

Offenses arising under this Section 11 (a) shall be deemed to be misdemeanors, provided, however, that the Justice Courts and the District Court in the State of Montana shall have concurrent jurisdiction thereof.

(b) Any person who files or causes to be filed any return, affidavit or statement required or permitted by this article which is wilfully false or fraudulent, or who wilfully fails to file a return with intent to evade the tax is guilty of a felony.

(c) Any person failing to file a return or corrected return or to pay any tax within the time required by this article shall be subject to a penalty of five (5) per centum of the amount of tax due plus interest of one (1) per centum of such amount for each month of delay or fraction thereof, after the day upon which such return was required to be filed or such tax became due. Any person filing a false or fraudulent return or wilfully failing to file a return with intent to evade the tax shall be subject to a penalty of one hundred (100) per cent of the amount of tax due plus interest of one (1) per centum of such amount for each month of delay or fraction thereof after the day upon which such return was required to be filed or such tax became due. The Department, in its discretion, upon making a record of its reasons, may remit all or any part of such penalty.

(d) The failure to do any act required by or under the provisions of this article shall be deemed an act committeed in part at the office of the Department of Motor Vehicles in Helena. The certificate of the Department to the effect that a tax has not been paid, that a return has not been filed, or that information has not been supplied as required by or under the provisions of this article, shall be prima facie evidence that such tax has not been paid, that such return has not been filed, or that such information has not been supplied. The term "Person" as used in this section, shall include an officer, director, stockholder, or employee of a corporation, or a member of a partnership, who as such officer, director, stockholder, employee or member is under the duty to perform the act in respect of which the violation occurs.

(e) Upon the conviction of any person for a violation of any of the provisions of this article the Justice of the Peace or the Clerk of the District Court, as the case may be, shall within forty-eight (48) hours certify the facts of the case to the Department and such certificate shall be presumptive evidence of the facts recited therein. If any such conviction shall be reversed upon appeal therefrom the person whose conviction has been so reversed may serve upon the Department a certified copy of the order of reversal and the Department shall thereupon record the same.

(f) Violations of this article may be prosecuted by the County Attorney in any county in which a violation of this Act occurrs or by the Attorney General of the State of Montana.

Section 12. **Refunds.** (a) Whenever the Department shall determine that any monies received under the provisions of this article were paid in error, it may cause the same to be refunded or credited, without interest, in accordance with such rules and regulations as it may prescribe, out of funds in the custody of the comptroller to the credit of such taxes provided an application therefor is filed with the Department within two (2) years from the time the erroneous payment was made.

Section 13. **Powers of the Department.** In addition to any other conferred by this Act the Department shall have the following powers: (a) To prescribe such methods and means as the Department determines to be necessary for checking, verifying and ascertaining the number of miles traveled by, and the weight of, each vehicular unit on the public highways in this state;

(b) To prescribe the method of accounts and the type of records to be kept by any carrier to the extent necessary to determine liability under this Act, and to design all application and reporting or other forms required for the enforcement or administration of this Act;

(c) To weigh any vehicular unit operating on the public highways in this state at reasonably frequent intervals;

(d) To require any carrier subject to tax hereunder to file with the Department a bond issued by a surety company authorized to transact business in this state in such amount as the Department may fix, to secure the payment of any monies which may become due from such carrier pursuant to this Act. In lieu of such bond any such carrier may deposit securities approved by the Department in such amount as it may prescribe, which securities shall be kept in the custody of the Department and may be sold by the Department if it becomes necessary so to do in order to recover any sums due from such carrier pursuant to this Act; but no such sale shall be had until after such carrier shall have had an opportunity to review the tax as provided in Sections 8 and 9 hereof if it elects to do.

Upon such sale the surplus, if any, above the sums due under this article, shall be returned to said carrier. The amount of the bond or securities required hereunder shall be reasonably related to the probable liability of the carrier under this article. In those cases where a security is required under this section to withhold the issuance of a use permit until such security has been furnished or if the security is required after a use permit has been issued to revoke the same until such security has been furnished.

(e) To prescribe the form of the tag, plate, permit or other evidence of the use permit provided for by this Act and the method of the display thereof in or upon any motor vehicle. To establish rules relative to the requirements for the marking of motor vehicles subject to the terms of this Act.

(f) To provide rules for its own procedure in the determination of taxes, the designation of hearing officers, the power of such hearing officers, the extent of the rules and regulations as may be necessary to the complete exercise of its powers to determine the amount of taxes, penalties and interest due and owing.

(g) To designate ports of entry in the State of Montana at which carriers entering the State of Montana shall be required to report and to establish rules and regulations relative to such ports of entry, the hours thereof, the duties of the employees thereof; to establish at places other than permanently designated points of entry places where carriers entering Montana may be required to report and trip permits may be purchased and to provide by rule for the appointment of deputies who are authorized to issue such trip permits on either a whole or part time basis, and to provide for the compensation of such deputies.

(h) Whenever the Department or its designated agents shall deem that any person may escape from the State of Montana with a motor vehicle which has been operated over the highways of the State of Montana without payment of the taxes due by reason of the operation of such motor vehicle under this Act, to impound such vehicle as security for the payment of taxes, interest and penalties which may be due under the provisions of this Act and to provide rules relating to the security to be furnished upon the release of any vehicle so impounded.

(i) To cooperate with other departments, agencies and officers of the State of Montana in the enforcement of this Act and to designate as deputies with power to assist in the supervision and enforcement of this Act, the officers, agents and employees of other departments or agencies of the State.

(j) To make any other reasonable rules and regulations to effectuate the purposes of this Act and the general powers granted to the Department herein.

Section 14. **Disposition of Revenues.** The amount of all fees, taxes, penalties and interest received pursuant to this article shall be deposited with the State Treasurer of the State of Montana for the credit of the Highway Fund, which fund shall be kept separate and apart from all other monies in the possession of the State Treasurer, except that out of the fees collected by County Treasurers under Schedule I, Section 3 the County Treasurers may retain five (5) percent of the amount thereof as a fee for the collection of such amounts. All fines imposed for violations of the provisions of this Act shall be deposited with the County Treasurer of the county in which the fine is assessed and by him remitted to the State Treasurer for the credit of the Highway Fund.

Section 15. **Severability Clause.** If any part of this Act shall be declared by any court of competent jurisdiction to be unconstitutional, such unconstitutionality shall not affect the validity of the remaining parts of this Act, except that the legislature declares that if the taxes imposed under Section 3 hereof are unconstitutionally imposed or for any reason uncollectable that the legislature would not have enacted this Act and particularly Section 19 hereof.

Section 16. **Non-Transfer of Permit.** Use permits issued under this Act shall expire on the 31st day of December in each year. The use permit shall not be transferrable to another motor vehicle but is transferrable to a new owner upon the transfer of the title or interest of the legal owner of the motor vehicle, provided that if the motor vehicle is destroyed from any cause the Department may credit such portion of the amount paid for the use permit as may be proper to the payment for a use permit for a replacement vehicle. No transfer of ownership shall relieve any person who has become liable for the payment of taxes, penalties or interest from the obligation to pay the same.

Section 17. **Municipal taxation.** Municipalities shall not levy, assess, collect or charge any tax other than those herein prescribed upon any interstate or intrastate carriers of persons or property for hire whether such carriers operate between municipalities or through a municipality or other municipalities. No carrier shall be exempt hereby from paying a parking, curb, or ad valorem property tax levied by any municipality.

Section 18. **Short Title.** The taxes imposed by this Act are imposed in consideration of the use of the public highways of this state by motor vehicles. This Act may be cited by the short title "Montana Highway Use Act."

Section 19. **Repeals.** Section 1 of Chapter 219 of Laws of 1951 as amended by Section 1 Chapter 139, Laws of 1953 and Section 1 Chapter 258, Laws of 1955, and Section 2 of Chapter 219, Laws of 1951 as amended by Section 1 Chapter 177, Laws of 1955, and Section 4 of Chapter 219, Laws of 1951 as amended by Section 1 Chapter 175, Laws of 1955, and Section 5 of Chapter 219, Laws of 1951 as amended by Section 1 Chapter 89, Laws of 1955, and Sections 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 of Chapter 219, Laws of 1951, and Section 1 Chapter 251, Laws of 1955, and Chapter 183, Laws of 1955, and all acts and parts of acts inconsistent herewith are hereby repealed provided, however, that nothing herein contained shall have the effect of extinguishing any tax liability existing or incurred under any repealed laws prior to the effective date hereof nor abating any prosecution commenced prior to or after the effective date hereof for violations of the laws repealed hereby occurring prior to the effective date hereof.

Section 20. **Effective Date.** This Act shall be in full force and effect on and after the 1st day of January 1958.

MOTOR VEHICLE DEPARTMENT LAW

(The urgent need for the establishment of a Motor Vehicle Department in Montana has been covered in Appendix B. A proposed law for establishing such a department and incorporating existing agencies within it is presented here. Perhaps additional laws would be necessary to repeal functions of some of the departments that would be consolidated under this Department. In any case the proposal given here is based in a large degree on Chapter 2 of the Uniform Motor Vehicle Code. In order to finance the department it has been suggested that the operators license fees that now go to the State General Fund and all the special fees that now go to operate the Registrar of Motor Vehicle office be credited to the State Highway Fund, and necessary operating monies for the Motor Vehicle Department then be appropriated entirely from the State Highway Fund. This fund, of course, should be the recipient of all fees collected by the Motor Vehicle Department.)

(Proposed)

Section 1. A department of the government of the State of Montana to be known as the Department of Motor Vehicles is hereby created. The Department shall succeed to and is hereby vested with all the powers, duties and jurisdiction now vested in the Montana Highway Patrol, the Montana Highway Patrol Board, the Registrar of Motor Vehicles, the State Reciprocity Board, and the functions of the State Highway Commission as they apply to the collection of fees of motor vehicles specified in Sections 53-615 through 53-643, inclusive, of the Revised Codes of Montana, 1947, as amended, and the State Board of Equalization so far as duties specified for that board under Section 84-1801 through 84-1841 of the Revised Codes of Montana, 1947, as amended.

Sections 2 & 3. (Sections 2 and 3 left open to provide for single commissioner or several member board, or such other method of topside control as legislative authority may consider appropriate. In this connection, the Fact Finding Committee passed a resolution on September 24, 1956, stating the opinion that the Commission should be under the control of a director appointed by the Governor and confirmed by the Senate.

Section 4. The commission shall organize the department in such manner as may be deemed necessary to properly segregate and conduct the work of the department but the department is hereby divided into at least five (5) divisions to be known respectively as the Division of Registration and Titles; the Division of Motor Vehicle Tax Collection and Refunds; the Division of Commercial Vehicle Taxation and Ports of Entry; the Division of Highway Patrol; and the Division of Operators Licenses, Traffic Safety, Accident Reporting, and Financial Responsibility.

Section 5. The commission shall appoint an administrator, (depending on provisions of Sections 2 and 3), who will be known as the Director of Motor Vehicles, and shall be paid such salary as the commission shall direct, but not to exceed Twelve Thousand ($12,000.00) Dollars per annum. The director, under the advice and consent of the commission, shall appoint such deputies, subordinate officers, clerks, investigators and other employees as may be necessary to carry out the provisions of this act. This shall include the appointment of a chief of the division of highway patrol and subordinate officers thereof, including captains, sergeants and traffic officers. The total personnel of the highway patrol shall not exceed .... in number. The salaries of all such appointees shall be fixed by the director of motor vehicles, subject to the approval of the motor vehicle commission, notwithstanding the salaries specified for highway patrol personnel in Sections 31-104 and 31-105 of the Revised Codes of Montana, 1947, as amended.

Section 6. The commission (or director) shall establish a suitable merit system to assure continuity of personnel in the department.

Section 7. The motor vehicle commission (if required by Sections 2 and 3) is empowered to delegate as much of its authority to the director of motor vehicles as the commission considers appropriate.

The motor vehicle commission (or director) is hereby vested with the power, and is charged with the duty of observing and enforcing the provisions of this act and of all laws regulating the operation of motor vehicles or the use of the highways, the enforcement or administration of which is now or hereafter vested in the department.

The commission (or director) is hereby authorized to adopt and enforce such rules and regulations as may be necessary to carry out the provisions of this Act and any laws, the enforcement and administration of which are vested in the Department.

The Commission (or director) may adopt an official seal for the use of the Department.

Section 8. The director shall have the authority to organize the Department with such additional personnel as may be necessary and to establish accounting procedures and other administrative services as may be required. He shall delegate duties to the supervisors of the various divisions, but in assigning duties shall follow generally the titles of the divisions herein created.

Section 9. The commission (or director) shall maintain an office in the State Capitol and in such other places in the State as the commission may deem necessary to properly carry out the powers and duties vested in the Department. This shall include the establishment of a division of registration and operators' licenses in the city of Deer Lodge and the warden of the State Prison shall provide quarters therefor.

Section 10. The director shall prescribe and provide suitable forms of applications, certificates of title, registration cards, operators' and chauffeurs' licenses and all other forms requisite or deemed necessary to carry out the provisions of the Act and any other laws the enforcement and administration of which are vested in the Department.

Section 11. Officers and employees of the Department designated by the director are, for the purpose of administering the motor-vehicle laws, authorized to administer oaths, and acknowledge signatures and shall do so without fee.

The director and such officers of the Department as he shall designate are hereby authorized to prepare under the seal of the Department and deliver upon request a certified copy of any record of the Department charging a fee of fifty cents ($0.50) for each document so authenticated and every such certified copy shall be admissible in any proceeding in any court in like manner as the original thereof.

Section 12. All records of the Department, other than those declared by law to be confidential for the use of the Department, shall be open to public inspection during office hours.

The commission (or director) may order destroyed any records of the Department which have been maintained on file for five (5) years and which the Commission may deem obsolete and of no further service in carrying out the powers and duties of the Department.

Section 13. The Department shall examine and determine the genuineness, regularity and legality of every application for registration of a vehicle for a certificate of title thereof, and for an operator's or chauffeur's license, and of any other application lawfully made to the Department and may, in all cases, make investigation as may be deemed necessary or require additional information, and shall reject any such application if not satisfied of the genuineness, regularity, or legality thereof or the truth of any statement contained therein or for any other reason when authorized by law.

Section 14. The Department is hereby authorized to take possession of any certificate of title, registration card, permit, license or registration plate issued by it upon expiration, revocation, cancellation or suspension thereof, or which is fictitious, or which has been unlawfully or erroneously issued.

Section 15. The Department may publish a synopsis or summary of the laws of the States regulating the operation of vehicles and may deliver a copy thereof without charge with each original vehicle registration and with each original operator's or chauffeur's license.

Section 16. (a) The commission, director, and other officers of the Department duly designated by the commission shall have authority to summon witnesses to give testimony under oath or to give written depositions upon any matter under the jurisdiction of the Department. Such summons may require the production of relevant books, records, or papers.

(b) Every such summons shall be served at least 5 days before the return date, either by personal service made by any person over 18 years of age or by registered mail, but return acknowledgment is required to prove such latter service. Failure to obey such a summons so served shall constitute a misdemeanor. The fees for the attendance and travel of witnesses shall be the same as for witnesses before the District Court.

(c) The District Court shall have jurisdiction, upon application by the director, to enforce all lawful orders of the director under this section.

Section 17. Whenever the Department is authorized or required to give any notice under this Act or other law regulating the operation of vehicles, unless a different method of giving such notice is otherwise expressly prescribed, such notice shall be given either by personal delivery thereof to the person to be so notified, or by deposit in the United States mail of such notice in an envelope with postage prepaid, addressed to such person at his address as shown by the records of the Department. The giving of notice by mail is complete upon the expiration of four days after such deposit of said notice. Proof of the giving of notice in either such manner may be made by the certificate of any officer or employee of the Department or affidavit of any person over 18 years of age, naming the person to whom such notice was given and specifying the time, place and manner of the giving thereof.

Section 18. The director and such officers and inspectors of the Department as he shall designate and all members of the division of the highway patrol shall have the power:

(a) Of peace officers for the purpose of enforcing the provisions of this Act and of any other law regulating the operation of vehicles or the use of any highway, road, or street in Montana.

(b) To make arrests upon view and without warrant for any violation committed in their presence of any of the provisions of this Act or other law regulating the operation of vehicles or the use of the operation of vehicles or the use of the highways.

(c) At all times to direct traffic in conformance with law and in the event of a fire or other emergency or to expedite traffic or to insure safety to direct traffic as conditions may require notwithstanding the provision of law.

(d) When on duty, upon reasonable belief that any vehicle is being operated in violation of any provision of this Act or of any other law regulating the operation of vehicles, to require the driver thereof to stop and exhibit his driver's license and the registration card issued for vehicle and submit to an inspection of such vehicle, the registration card thereon or to an inspection and test of the equipment of such vehicle.

(e) To inspect any vehicle of a type required to be registered hereunder in any public garage or repair shop or in any place where such vehicles are held for sale or wrecking, for the purpose of locating stolen vehicles and investigating the title and registration thereof.

(f) To serve all warrants relating to the enforcement of the law regulating the operation of vehicles or the use of the highways.

(g) To investigate traffic accidents and secure testimony of witnesses or of persons involved.

(h) To investigate reported thefts of motor vehicles, trailers and semi-trailers.

Section 17. (a) The commission (or director) shall require that the division of highway patrol properly patrol the highways of this State and cooperate with and assist sheriffs and police in enforcing the laws regulating the operation of vehicles and the use of highways.

(b) The commissioner (or director) may establish a school for the training and education of the members of said division in traffic regulation, the promotion of traffic safety and enforcement of the laws regulating the operation of vehicles and the use of the highways.

(c) All members of said division when on duty shall be dressed in distinctive uniform and display a badge of office.

Section 18. (a) The director may issue to each member of the Division of Highway Patrol a badge of authority with the seal of this State in the center thereof, the word, Montana Highway Patrol, encircling said seal and below, the designation of the position held by the member to whom issued. Every such badge shall be serially numbered or each member shall otherwise display a distinctive serial number.

(b) Neither the director nor any other person shall issue any such badge to any person who is not a duly appointed and acting member of said division.

(c) Any person who, without authority, wears the badge of a member of said division, or a badge of similar design which would tend to deceive anyone, is guilty of a misdemeanor.

(d) Any person who impersonates a member of said division or other officer or employee of the Department with intent to deceive anyone, or who, without authority, wears a uniform likely to be confused with the official uniform of any such officer is guilty of a misdemeanor.

Section 19. The Motor Vehicle Recording Fund, sometimes known also as the Motor Vehicle Administration Fund, is hereby abolished, and all funds formerly directed to the credit of the Motor Vehicle Recording Fund shall hereafter be credited to the State Highway Fund.

Section 20. Section 13, Chapter 199, Laws of 1943, regarding disposition of drivers' license fees is hereby repealed. All future monies received by the State Treasurer from the sale of drivers' or operators' licenses shall be deposited to the State Highway Fund.

Section 21. All accounts and expenditures of the Motor Vehicle Department shall be certified by the Director of Motor Vehicles, approved by the State Board of Examiners, and paid by the State Treasurer by warrants drawn by the State Auditor on the State Highway Fund.

The director of motor vehicles shall provide a system of accounting which will provide accurate records of the expenditures by purpose for each of the divisions herein created or established.

Section 22. In addition to other powers and duties, the Motor Vehicle Commission (or director) shall direct the compilation of statistics relative to motor vehicle and operator registration, highway accidents, enforcement activities, fuel tax collection and refunds, and such other matters as are deemed necessary and appropriate.

Section 23. The Motor Vehicle Department established by this Act shall organize immediately upon the passage and approval of the Act. It shall take over the functions of other departments and divisions, as directed in this Act, effective July 1, 1957.

Section 24. If any clause, sentence, section, paragraph or portion of this Act shall be adjudged to be invalid or inoperative, such judgment shall not affect, impair or invalidate the remainder of this Act and should any portion of this Act be held to be unconstitutional in its application in any circumstances, such holding shall not apply to the Act as a whole nor to the particular portion as it is applied in circumstances other than the specific circumstances wherein such unconstitutional application was held.

Section 25. All Acts and parts of Acts in conflict herewith are hereby repealed except as otherwise specified herein.

A PROPOSED PORT OF ENTRY LAW

(The possibility of developing Ports of Entry and the need for such action has been discussed in Appendix B. Such ports would presumably have to be established by law. A proposed law containing at least the broad outlines of provisions found successful in other States which have taken this step is included here as a guide.)

Section 1. **Declaration of Policy.** In order to facilitate enforcement of the laws of the State of Montana concerning motor carriers and the owners and operators of motor vehicles, to equally distribute the payments of any fees, licenses or taxes imposed by the laws of this State on motor carriers and the owners and operators of motor vehicles, and to effect the collection thereof, and to assist motor carriers and the owners and operators of motor vehicles to comply with all tax laws, rules and regulations pertaining to them it is hereby declared necessary to establish motor vehicle inspection stations on the public highways of this State.

Section 2. **Definition.** Wherever used in this Act, the words "motor vehicles" shall be defined as trucks, truck-tractors, trailers or semi-trailers or combinations thereof.

Section 3. **Division of Motor Vehicle Department.** There is hereby created within the Motor Vehicle Department of the State of Montana a motor vehicle inspection division, which division shall, acting under the direction of the Director of Motor Vehicles, be responsible for establishing and operating motor vehicle inspection stations at such points on the public highways of this State as are deemed necessary to carry out the purposes of this Act. The Director of Motor Vehicles shall create no less than six permanent inspection stations and no less than three mobile inspection stations within the division. He shall create such additional stations as are deemed necessary and are within the limits of the funds available for that purpose. The location or relocation of such stationary or movable inspection stations shall be at the discretion of the Director of Motor Vehicles.

Section 4. **Powers and Duties.** The Director of Motor Vehicles shall issue such rules and regulations as are deemed by him to be necessary to implement this Act and carry out its purposes. The Director of Motor Vehicles shall, to the fullest extent possible, house department field offices at such places as inspection stations are established. All permanent inspection stations established under the authority of this Act shall be operated continuously and on a twenty-four hour a day basis and in such manner as to reasonably allow owners and operators of motor vehicles subject to fees, licenses or taxes or to regulations imposed by the State of Montana to comply with all such laws and regulations issued pursuant thereto, by clearance at an inspection station. All permanent inspection stations shall be equipped with weighing equipment, approved as to accuracy by the State Division of Weights and Measures.

The personnel of a motor vehicle inspection station, during the time they are actually engaged in performing their duties as such, and while acting under proper orders or regulations issued by the Director of Motor Vehicles, shall have and exercise all the powers invested in peace officers in connection with the enforcement of the provisions of this Act, except that they shall not have the power to serve civil writs and process, and in the exercise of their duties such personnel shall have authority to restrain and detain persons or vehicles and may impound any vehicle until any tax or license fee imposed by law is paid, or until compliance is had with any tax or regulatory law or regulation issued thereunder.

Section 5. **Clearance of Motor Vehicles at Inspection stations.** All owners and operators of motor vehicles subject to fees, licenses, or taxes imposed by the State shall be required to stop for clearance at a motor vehicle inspection station or obtain clearance from an officer of the Montana Highway Patrol. The Director of Motor Vehicles shall issue regulations to implement this requirement and may provide for an equivalent method of complying with the clearance and inspection requirement.

Section 6. **Issuance of Clearance Certificates** (1) Each inspection station shall be provided by the Director of Motor Vehicles with a current list of all owners and operators of motor vehicles who have been properly licenesd by the State of Montana and who are qualified to make their approved regular tax payments to the Motor Vehicle Department. All owners and operators appearing on such lists shall be issued a clearance certificate by the State after inspection. The inspection stations shall maintain a daily record of all clearances issued under this subsection, which record shall include: the name of the owner or operator in whose name the licenses have been issued, origin and destination of trip, taxable weight and description of the vehicle and cargo, and any other data which in the opinion of the Director of Motor Vehicles is required. Such daily reports by the inspection stations shall be used as a basis of audit of motor vehicle reports filed with the Department of Motor Vehicles as are required by law.

(2) All owners and operators of motor vehicles subject to the payment of fees, licenses or taxes imposed by the laws of this State including foreign vehicles, which have not been properly certificated or permitted by the Montana Railroad Commission or which have not been approved by the Department of Motor Vehicles for quarterly or periodic payment of such fees, licenses or taxes, shall be issued a clearance certificate at inspection station only after such fees, licenses, or taxes which may be due are paid or compliance is had with regulatory Acts. A clearance certificate issued under this subsection shall specify the date upon which issued, origin of trip, destination, routes to be travelled within the State, amounts of fees, licenses or taxes paid. Such certificate shall be valid only for the routes and trips specified thereon, and for the length of time specified thereon. The Director of Motor Vehicles through the motor vehicle inspection stations may also issue permits for oversize and overweight commercial hauls pursuant to rules and regulations governing such hauls established by the State Highway Department. Failure to secure such clearance certificate shall subject the owner or operator to a penalty of double the amount of any tax, license or fee due which shall be in addition to and distinct from the penalty provided for in Section 9 hereof.

Section 7. **Construction and Rights-of-Way.** Within thirty days after receiving notification from the Director of Motor Vehicles the State Highway Department shall make available without charge to the Department of Motor Vehicles such rights-of-way upon or adjacent to the public highways of this State as are needed for the construction or reconstruction of inspection stations. If such rights-of-way are not available, the State Highway Department shall acquire such rights-of-way as are needed to carry out the purposes of this Act out of money in the State Highway Fund provided for right-of-way acquisition. Insofar as possible the construction, reconstruction and maintenance of motor vehicle inspection stations shall be accomplished with forces of the State Highway Department within thirty days after notification by the Director of Motor Vehicles requesting such work.

Section 8. **Cooperation Among Departments.** The Governor of Montana shall require the Director of the Department of Motor Vehicles (chief of the State Highway Patrol, if not under the Motor Vehicle Department) the Highway Commission, Commissioner of the Department of Agriculture, Director of the State Department of Advertising and Publicity and the chairman of the Montana Railroad and Public Service Commission to cooperate to the fullest extent possible to the end that motor vehicle inspection stations established under authority of this Act shall serve the broadest possible functions.

Section 9. **Fines and Penalties.** (1) All fines and penalties imposed under this Act shall be paid into the State Highway Fund.

(2) Any owner or operator of a motor vehicle, or the officers, agents or employees thereof, or any other person or corporation violating any of the provisions of this Act or knowingly violating any regulations issued persuant thereto shall be guilty of a misdemeanor and upon conviction thereof shall be punished according to the following schedule:

(a) For a first offense—not less than fifty dollars ($50.00) nor more than one hundred dollars ($100.00),

(b) For a second offense—not less than one hundred dollars ($100.00) nor more than two hundred fifty dollars ($250.00),

(c) For a third or subsequent offense—not less than five hundred dollars ($500.00) nor more than one thousand dollars ($1,000.00), or not more than six months imprisonment in the county jail or both such fine and imprisonment at the discretion of the Court.

In addition to the penalties stated above the Director of Motor Vehicles shall, upon the conviction of any owner or operator or of any agent, officer or employee, after a third offense within one calendar year, notify the Railroad and Public Service Commission of such conviction, and the Commission may suspend any license or permit for a period not to exceed six (6) months or revoke all such certificates and permits issued to the owner or operator of such vehicles by the Commission. Such certificate or permit can be suspended or revoked only after due notice and hearing and for good cause shown. The Director of Motor Vehicles shall file a complaint with the Railroad and Public Service Commission, and the Commission must hold a hearing within thirty days after filing of a complaint by the Director of Motor Vehicles. If at such hearing the Commission finds that the facts as stated in the complaint by the Director of Motor Vehicles are substantially correct, then the Commission may forthwith revoke all intrastate certificates and permits issued by them to such violator.

Section 10. **Appropriations.** (1) For the construction of motor vehicle inspection stations and for the purchase of equipment therefor, and equipment for roving crews, there is hereby appropriated, as a first claim, the sum of two hundred fifty thousand dollars ($250,000.00) from the State Highway Fund.

(2) For the purpose of administering this Act and for operation of the inspection stations established pursuant thereto, there is hereby appropriated from the State Highway Fund the sum of two hundred thousand dollars ($200,000.00) for the fiscal year ending June 30, 1958, and an additional two hundred thousand dollars ($200,000.00) for the fiscal year ending June 30, 1959. All funds for future years, for construction, maintenance and operation shall be made from the State Highway Fund by the Legislative Assembly, upon presentation of a budget for that purpose in form and content as may be prescribed by the Controller of the State.

Section 11. This Act shall be in force and effect from and after July 1, 1957, and all ports of entry or courtesy stations now operated by the Montana agencies at the time of final passage and approval of this Act shall be transferred to the Department of Motor Vehicles as of that date.

Section 12. If any provision of this Act, or the application thereof to any person or circumstances, is held invalid, such invalidity shall not affect other provisions or applications of the Act which can be given effect without the invalid provision or application, and to this end the provisions of this Act are declared to be severable.

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